JUNE 1953

FIREMEN

FIFTY-EIGHTH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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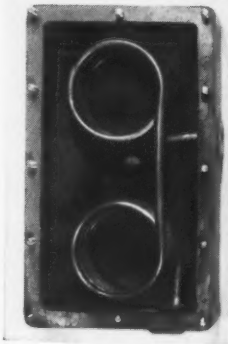
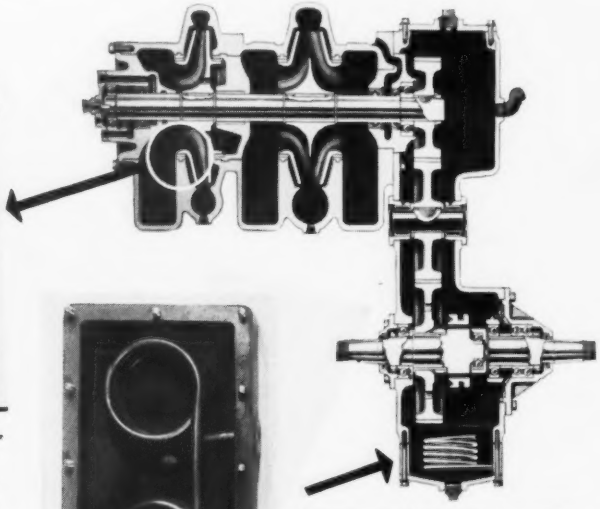
THERE'S *Extra Value* FOR YOU...

Replaceable seal rings both in pump housing and on each impeller. No machine work on housing or replacement of impellers required to restore original operating clearance. Seals are high strength hard bronze for maximum service life.



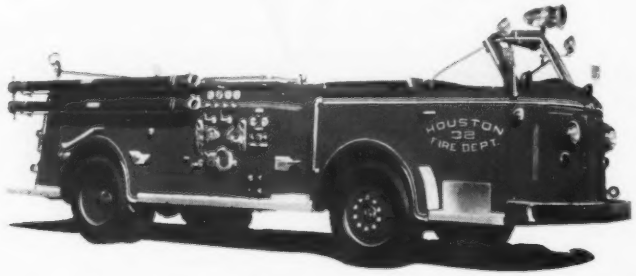


Copper cooling coils in pump transmission case insure proper oil temperature for gear and bearing lubrication under all conditions of operation. Cooling is automatic when pump is in operation.

Two of these Extra Values are in the TRIPLEFLOW pump —replaceable seal rings and transmission oil cooler

The TRIPLEFLOW pump is built in the American-LaFrance factory. The case is all bronze to maintain high efficiency throughout the service life of the pump. No corrosion to cause increased wear or loss of efficiency.

The impeller shaft is special type hardened stainless steel for long packing life. Packings are neoprene with automatic adjustment. Heavy duty ball bearings support the impeller shaft assembly for maximum service life.



Fifteenth in a series of advertisements showing the EXCLUSIVE EXTRA VALUES in American-LaFrance Fire Engines.

For details of these EXTRA Values and MANY MORE, write for illustrated booklet.

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ELMIRA, NEW YORK, U.S.A.

LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

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F O R U N I F O R M S A T I S F A C T I O N

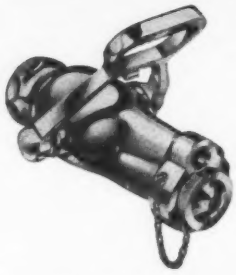
Helping You Cut Fire Losses

As leading manufacturers of fire fighting equipment, Rockwood makes many products that contribute vitally to the quick extinguishment or effective control of all kinds of fires. On this page are representative Rockwood products that daily play a vital role in fire protection programs throughout the nation.

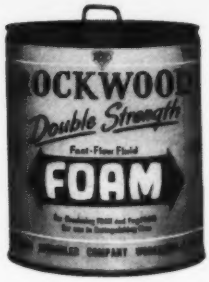
For further details on these products, and many, many others, write for your free copy of the Rockwood Catalog, "Fire Fighting Products." ROCKWOOD SPRINKLER COMPANY, 88 HARLOW STREET, WORCESTER 5, MASS. Distributors in all principal cities.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . .
to Cut Fire Losses

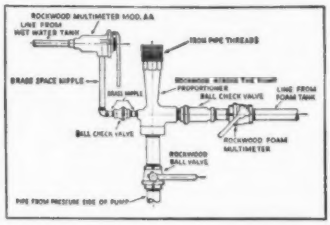


Type SG-48 WaterFOG Nozzle. Easy to handle. Discharges high or low velocity WaterFOG or straight water stream.



Double Strength Foam Liquid for fire hose line Nozzles and permanently piped FogFOAM and FOAM installations.

Type FFF FogFOAM Nozzle. Discharges FogFOAM, Solid FOAM stream, and High Velocity WaterFOG.

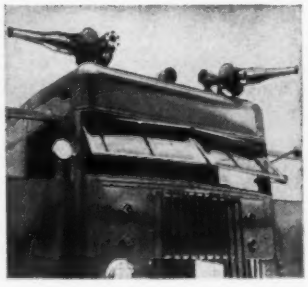


Proportioning systems. Used when pressure is maintained by pump. Custom-engineered systems also available.

Foam Eductor. Introduces FOAM liquid into hose lines. Used with Type FFF FogFOAM Nozzles.

High Capacity WaterFOG Nozzle. Quickly controls and extinguishes large fires in buildings and flammable liquids.

Type SG-60 Nozzle with FF Extension Unit. Five different kinds of discharges from only one nozzle.



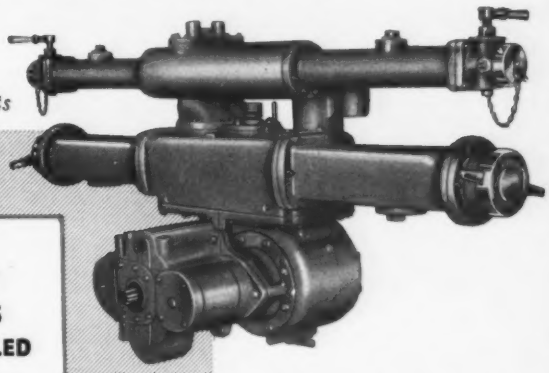
Hydraulically or Manually Controlled Type FFF FogFOAM Turret Nozzle for airport crash fire fighting trucks and others.

CHAMPION FIRE PUMPS

Write for Booklet on Fire Trucks and Pumps

★Type SH—500 or 600 or 750 Gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog. Three Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves (3 on 750 Pump).

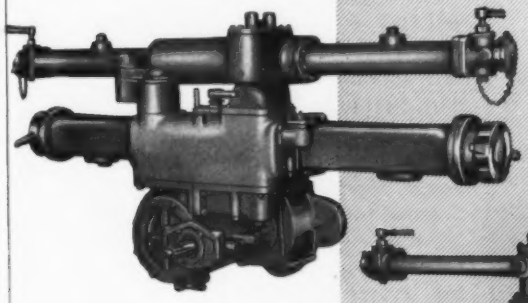
Midship Mounts



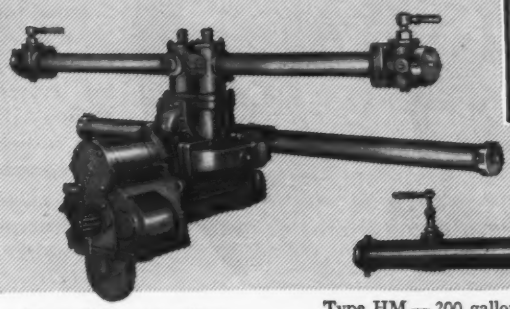
★Type S—Capacities 500-600-750 gallons per minute at 120 lbs. pressure. Two Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves. (3 on 750 Pumps).

DARLEY CHAMPIONS ARE UNEXCELLED FOR PERFORMANCE STAMINA ENGINEERING

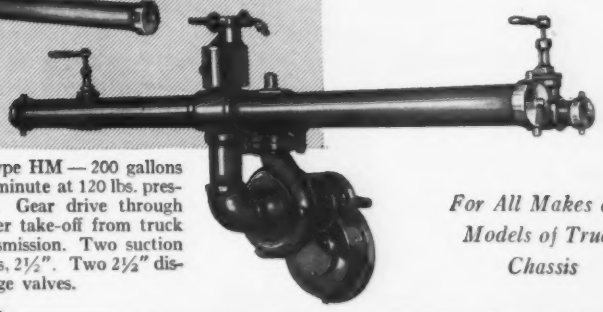
★ *Approved by National Board of Fire Underwriters and All State Insurance Bureaus*



★Type M — Capacities 400-500 gallons at 120 lbs. Gear Drive. Two suction inlets, 3½" or 4". Two 2½" discharge valves.

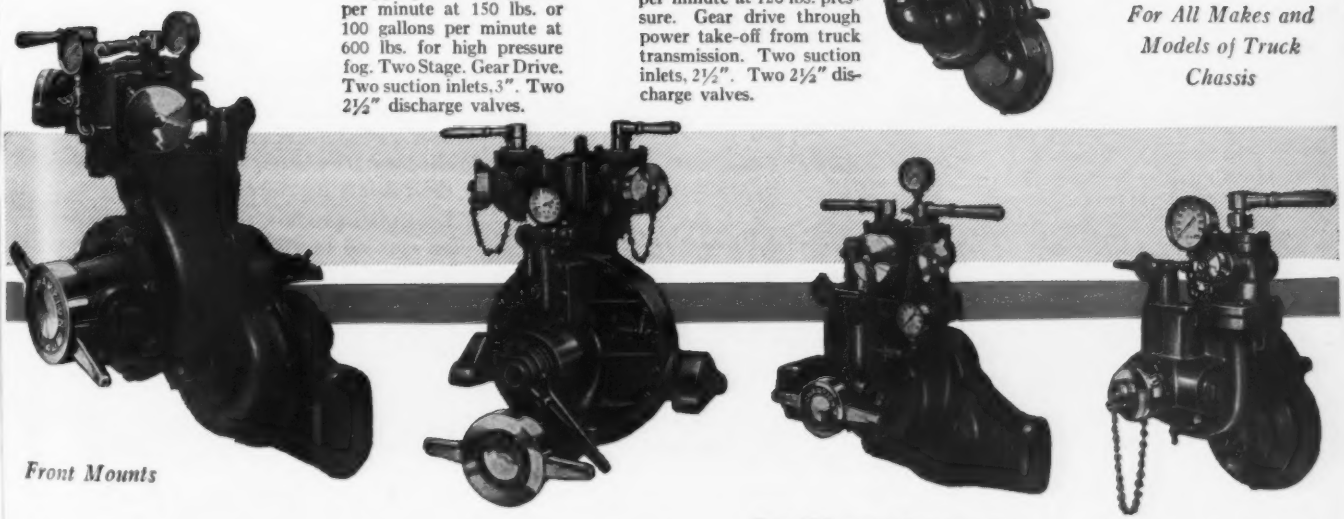


Type JMS—300 gallons per minute at 150 lbs. or 100 gallons per minute at 600 lbs. for high pressure fog. Two Stage. Gear Drive. Two suction inlets, 3". Two 2½" discharge valves.



Type HM — 200 gallons per minute at 120 lbs. pressure. Gear drive through power take-off from truck transmission. Two suction inlets, 2½". Two 2½" discharge valves.

For All Makes and Models of Truck Chassis



Front Mounts

★ Type KF—Capacities 400-500-600 gallons at 120 lbs. Gear Drive. 3½", 4", 4½" suction. Two 2½" discharge valves.

★Type F — Capacities 400-500 gallons at 120 lbs. Direct Drive. 3½, 4" suction. Two 2½" discharge valves.

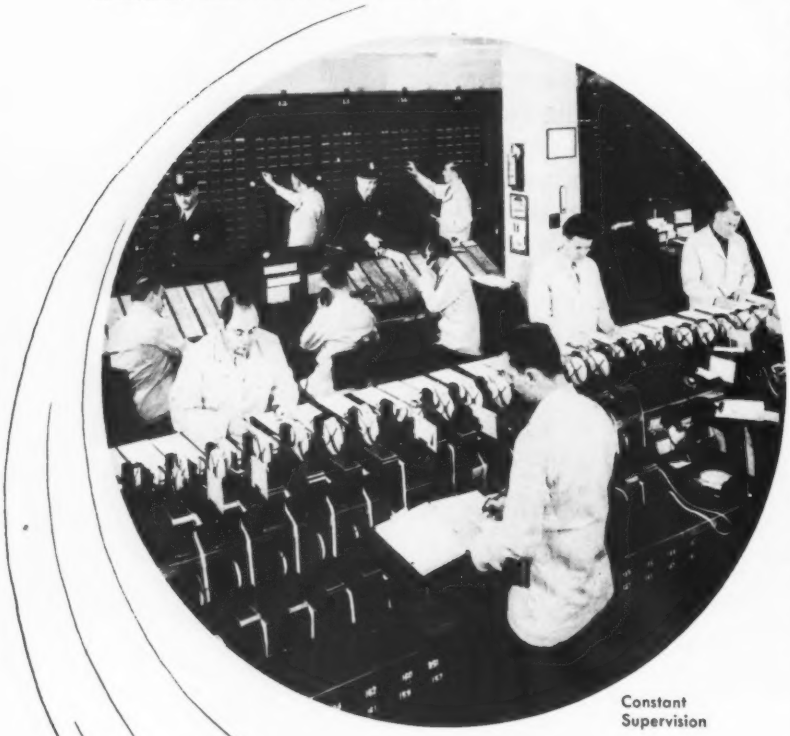
Type JFS—300 gallons per minute at 150 lbs. Pressures up to 1000 lbs. Two Stage. Gear Drive. 3" suction. One 2½" and two 1½" discharge valves.

Type H—100 gallons per minute at 500 lbs. pressure. Gear Drive. 2½" suction inlet. 1½" discharge valve.

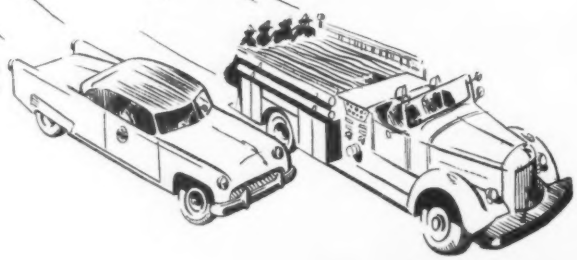
W. S. DARLEY & CO. Established 1908 Chicago 12

Complete Maintenance

WORKING 'ROUND THE CLOCK TO PROTECT LIFE AND PROPERTY



Constant Supervision



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More than 49,000 properties throughout the United States, valued in excess of $39,000,000,000, are safeguarded by protective installations connected to ADT Central Stations where specially trained personnel stand constant watch, 24 hours a day, to receive emergency signals and to take whatever action the situation demands.

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CENTRAL STATIONS IN PRINCIPAL CITIES

ADT

Firemen

Volume 20 — Number 6

WARREN Y. KIMBALL — EDITOR
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HENRY S. GERE — ADVERTISING MANAGER

Published monthly for the fire service members of the
NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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Sponsoring Boy Scout Troops

Thomas J. Keane, Director of Civic Relationships of the Boy Scouts of America, reports that there has been an encouraging increase in the number of fire departments who are sponsoring Boy Scout units. At the end of 1952 a total of 948 fire departments had undertaken such sponsorship. This represented an increase of 131 over the figure for the previous year. For the preceding 10 years the average yearly gain was only 40 fire department sponsors.

From time to time FIREMEN magazine has called attention to the value of Boy Scout activities. (See FIREMEN for December, 1952.) It is not hard to imagine the thrill of appreciation that comes to the new Scout when he receives encouragement and leadership from fire fighters in his community. The fact that troop sponsorship by fire departments continues to increase also indicates that many fire fighters are experiencing the satisfaction that comes to those who can impart to growing youth the desirable principles of constructive living and achievement.

(Cover picture and photo above by George E. Cron.)

Cover Picture

Members of the Grand Prairie, Texas, Fire Department, headed by Chief J. C. Swadley, encountered a frustrating fire situation in Dallas County when a building housing "The Bagdad Country Club" was destroyed. As shown on this month's cover and in the picture above, the building was of "Persian" design. It was a 2-story frame structure, with plank and timber floors, wood decked roof with tar and felt paper covering, open stair shafts and partitions without fire stops.

Originally the building had been a night club, but it had recently been converted to serve as a combined country club and art center. Many of the rooms were of unusual shape and size and were filled with art treasures whose estimated value totalled more than $1,000,000. According to reports almost every room in the building had metal doors which were secured with two or three padlocks each. A locksmith is said to have installed 200 locks in the building.

At about 6:15 A.M., the owner discovered heavy smoke on the first floor. (Later this was reported as caused by paper falling on an electric heater.) He called the Grand Prairie Fire Department which responded with three engines and an aerial ladder.

Two fire fighters, equipped with breathing apparatus, were entering the building when there was an explosion and flames spread throughout the structure. From that time on successful directing of hose streams was difficult. Because of the heavy padlocks fire fighters could not make openings at strategic points and could only direct heavy streams over the main structure. Heavy drapes on ceilings and horizontal and vertical openings allowed the fire to spread throughout the building.

Fire fighters used 9 hose streams of booster, 1½-in., and 2½-in. size, in addition to a deluge set and a ladder pipe. However, major fire damage was done to the building within the first two hours when pressure of fire gases blew the roof from the building. Shortly afterwards the walls began to topple and fire fighters could only concentrate on protecting exposures.

Grand Prairie received aid from near-by Hensley Field and a Naval Air Station, with additional assistance from the Irving and Arlington Fire Departments.

Fire and Explosion in Washington, D. C.

A report by Dr. William D. Claudy, Board of Police and Fire Surgeons, Washington, D. C.

When forty-seven fire fighters were injured in a recent fire and explosion in Washington, Dr. Claudy was on the fireground. As fire department physician he directed first aid and rescue activities. These pages contain his report on the emergency operations at the fireground and provide an excellent example of how such a fire incident should be reported.

ON JANUARY 15, 1953, a serious fire occurred in the Standard Tire and Battery Company store, in Washington, D. C. During the battle to control this fire, a sudden, severe, and unexpected explosion occurred injuring more than fifty-five persons, most of them firemen. Because of the lessons to be learned, it seems worth while to study this occurrence in some detail.

The Standard Tire and Battery Company is located on the northwest corner of Tenth and H Streets, N.E., in a new one and one-half story and full basement fire resistant building of reinforced concrete, cement, and cinder block. Tall glass show windows running nearly the full height of the building were located on the east and south exposures. A fire resistive party wall divided the west side of the store from its neighbor, while on the north was a service garage belonging to the store, contiguous with it, and in turn fronting on a public alley.

In addition to tires and batteries, the store handled radios, television sets, refrigerators, and other electric appliances, as well as jewelry and some general merchandise. The main floor was devoted entirely to sales and show room, heavily stocked with merchandise, while a balcony along the west and north walls housed bookkeeping and administrative offices. A full basement beneath the store was heavily stocked with tires and merchandise and was subdivided into several rooms by plasterboard partitions on 2″ x 4″ studs.

The basement could be reached only by a 3′ 10″ stairway at the north end. This stairway was divided from the main basement area by cinderblock walls, and the single door at the base of the stairway was metal-clad. East of the stairwell, a small passage descended four feet further to a boiler room which was under the service garage. Merchandise was moved into and out of the basement by means of a sidewalk trap door measuring 4′ 6″ by 5′ 1″. From the trap door, a tunnel 4½ feet wide and 6 feet tall ran 23 feet under the sidewalk to enter the basement on the Tenth Street side.

At the extreme south end of the basement, was located a small workshop and repair bench. Above this bench, on wooden shelves, were stored approximately fifty 1-pint glass jars of rubber cement, highly flammable, and subsequently found to have a flash point approximately that of benzene. Opposite the bench, at a distance of about five feet, were located two gas meters supplying natural gas and the electric service connections. Packed against the bench, and jammed tightly through the west corridor as well as the rooms beyond were large quantities of new auto tires, stacked from floor to ceiling. Storage of these tires also extended in to the tunnel under the sidewalk. A number of batteries and other miscellaneous material was also stored in the various basement rooms.

(At left) **The violent explosion at the Standard Tire and Battery Company store knocked down more than 50 fire fighting personnel and hurled heavy merchandise through openings and out into the street.**

AT APPROXIMATELY 11:40 A.M., an employee, while moving stock in the basement, accidentally knocked a glass jar of rubber cement from a shelf. It fell to the concrete floor and broke, spilling its contents. During the cleaning-up process the spilled cement, which had given off highly flammable and volatile vapors, became ignited from an undetermined cause.

The employee attempted to fight the fire, but was driven from the room. He then made his way to the first floor where he notified the manager of the accident. The manager and the employee then returned to the basement where they again attempted to locate and fight the fire. By this time, the fire had enveloped the work bench and was involving the tires. There was no ventilation. Increasing heat and smoke drove employee and manager from the basement, the latter then going to the street and sounding a street fire alarm box. An estimated seventeen to twenty-two minutes elapsed between the start of the fire and the receiving of the initial alarm.

FIRE alarm box 621 was received at 12:02 P.M. Responding on this alarm were Engine Companies 10, 18, and 3, Truck Company 13, and 7th Battalion Chief A. M. Grunwell. (E-3 was actually E-8, transferred to E-3's quarters; E-3 then being in service at another alarm.) First alarm companies encountered intense heat and smoke, but no visible flame. Additional responses are indicated below:

12:09 p.m. Additional truck company requested. Truck 7 responded, Deputy Chief C. E. Poole responded
12:11 p.m. Rescue 1 and Ambulance 1
12:17 p.m. Fire Department physician on scene (Dr. Claudy)
12:20 p.m. Rescue 2 and Ambulance 2
12:21 p.m. Washington Gas Light Company and Potomac Electric Power Company notified
12:22 p.m. Special call for air compressors and pneumatic drills

12:23 p.m. Fire Chief M. H. Sutton and Fire Marshal R. C. Roberts notified

12:25 p.m. Superintendent of Machinery William Boswell on scene

12:30 p.m. Chief Sutton and Marshal Roberts on scene

All engine companies had laid and charged lines, and attempts were made to work into the basement with these. Because of severe smoke and heat and lack of ventilation, carbon monoxide concentration tests were made at the trap door entrance at about 12:30 P.M. by fire department physician (Dr. Claudy). This showed a concentration of about 1.5 per cent and concentrations within the basement were undoubtedly many times higher.

Because of these findings, Deputy Chief Poole and Battalion Chief Grunwell ordered all personnel other than those using self-contained masks out of the basement. (In Washington, Engine Companies carry all-purpose cannister masks, Truck Companies all-purpose cannister masks and two airpaks each (Scott), while Rescue Companies carry Airpaks and McCaa oxygen masks.)

AT ABOUT 12:25 P.M. (see sketch), a hole was made in the floor at (a) and a few moments later at (b) using pneumatic drills. Bresnan distributors were placed in these openings. After operating through opening (b) for several minutes, the distributor was shut down for a moment to determine results. At this moment also, it was noted that the heavy smoke which had been pouring from the street scuttle opening was being sucked back into the basement. A few moments before, police had extended their fire lines and moved all spectators off Tenth Street. Except for this circumstance, it is inevitable that many more would have been injured in the ensuing blast.

At approximately 12:31 P.M., a sudden, violent explosion occurred in the basement. The concussion was sharp with a violent impact, rather than rumbling or pushing. Fine shards of window glass were blown hundreds of feet horizontally, and debris of all types was blown more than sixty feet into the air. A flash of flame was driven through the tunnel and up the stairwell at the opposite end of the building. Immediately after the explosion, of the more than fifty fire department personnel on the scene, none remained on their feet, and only five were able to take any part in the ensuing rescue operations. Of the forty-seven firemen injured, forty-four required treatment in hospitals.

Knocked down by the blast but uninjured were Chief Boswell, Dr. Claudy, and the operator of E-10's pumper, located at the corner of Tenth and H Streets and subsequently used as emergency communications center. In addition to firemen, five policemen and six spectators were injured.

A second alarm and a request for all available ambulances was sounded by Dr. Claudy at 12:32 P.M., and a third alarm was sounded at 12:34 P.M. by Chief Boswell. These brought six additional engine and two additional truck companies to the scene.

Immediately after the explosion, conditions facing the few available rescuers were chaotic. Injured, bleeding, and unconscious firemen littered the sidewalk. Others, caught within the building above the first floor, called feebly for help. A few staggered from the basement, but many were still trapped below. Rescue of these was considered paramount because of the possibility of extension of the fire, further explosions, suffocation, or drowning.

Immediate rescue operations by the few uninjured, supplemented by firemen with minor injuries, traffic policemen, and a few spectators were successful in saving all of the injured from the basement areas. No second explosion occurred. Gasfed flames at the south end of the building became visible for the first time and commenced to involve some of the combustible scattered wreckage. Removal of the severely injured firemen, including Chief of the Department M. H. Sutton, from this area was accomplished without regard to advancing flames, which were quickly controlled by second alarm companies using hose lines already laid, but stripped of their crews by the explosion. (It is worth noting that of the spectators giving aid, all had some type of emergency training. Two were uniformed Marines on their way to the nearby Navy Yard, two were auxillary firemen, and one an off-duty fireman from nearby Arlington County.)

The response of the surrounding communities from whom ambulances had been requested was immediate and generous. Ambulances and rescue squad units reached the scene in minutes from nearby Montgomery and Prince George Counties, Maryland; Arlington County, Virginia and the city of Alexandria, Virginia.

The earlier action of fire alarm headquarters in transferring apparatus to cover in at vacated engine houses insured prompt response to the second alarm. It is estimated that the first due company on the second, responding from E-10's house, was on the scene and doing effective rescue and first aid within three minutes of the time that the first call for aid went out over the air.

Removal from the wreckage and first aid to the injured took precedence over firefighting, and the tremendous variety and severity of the injuries can be appreciated by reference to the accompanying chart. The list number has been placed on the chart to show where each individual was found or where he was serving at the time of the explosion, his injuries are listed and can be correlated with his location. (*See chart on page 10.*)

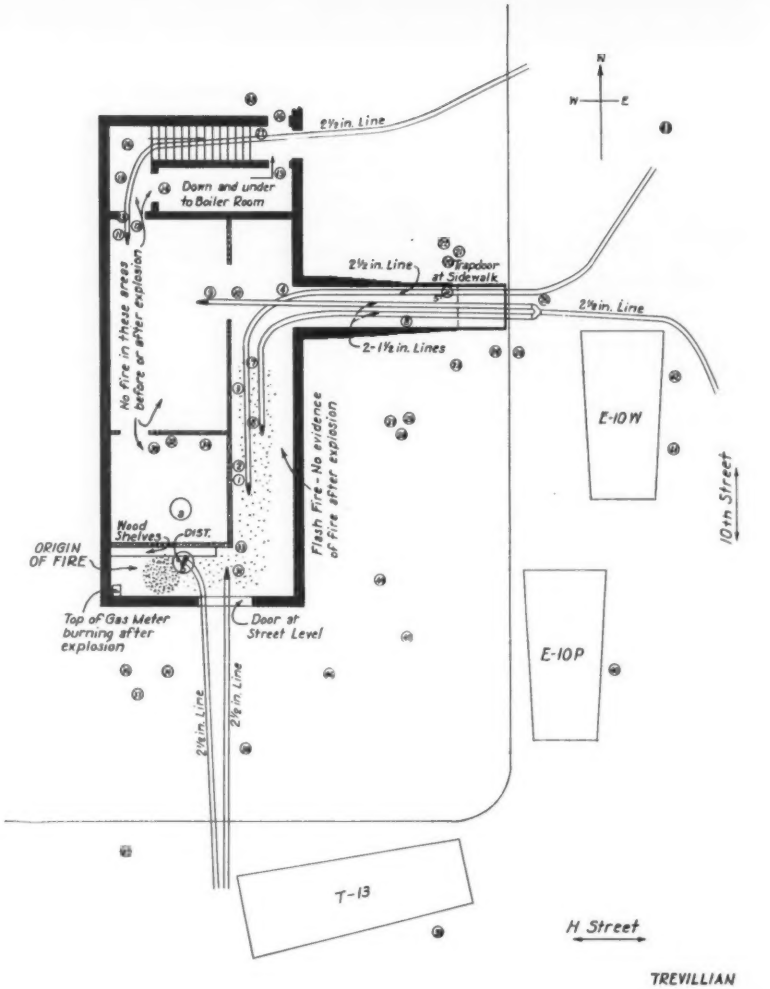
GENERALLY, those in the tunnel area (A), though nearest to the point of explosion, faired best of the four groups. They were burned by the rush of flaming gases, and knocked from their feet, but were struck only by falling tires which did not cause serious body injuries seen elsewhere. Those in area (B) on the stairwell and in the north end of the basement, received injuries caused by shattered partitions and cinder block walls being hurled against them and by being themselves thrown against the walls and into the debris.

Group (C) includes all those working within the building on the first floor, most of them at the south end, and thus over or nearly over the site of the explosion. Here, injuries were due to two factors. The tremendous force exerted beneath the floor buckled the heavy re-inforced concrete like cardboard. Those standing on this floor received multiple fracture dislocations of the feet and

(*Please turn to page 11*)

Numbers of Injuries

1. Second and third degree burns of face and hands. Multiple contusions. Shock.
2. Second and third degree burns of face, hands, neck, and head (no helmet). Contusions, shock, concussion.
3. Second degree burns of face, hands, and neck. Contusions. Shock.
4. Second degree burns of face and hands. Contusions.
5. Second and third degree burns.
6. Second and third degree burns of face, head, neck, hands. Contusions. Shock.
7. Second degree burns. Contusions. Shock.
8. Burns of head, face and one hand.
9. Multiple contusions, lacerations, internal injuries, concussion. Blast shock.
10. Second degree burns. Contusions. Shock.
11. Second and third degree burns of face, head, neck and hands. Collapsed lung. Subcutaneous emphysema. Nine fractured ribs, fractured forearm, fractured kneecap.
12. Fractured pelvis, internal injuries, lacerations, contusions. Shock.
13. Fractured thigh, fractured kneecap, contusions. Shock.
14. Fracture of upper and lower jaw, multiple lacerations of face and lip, severe cerebral concussion, multiple contusions, shock.
15. Blast syndrome, multiple lacerations, sprains, shock.*
16. Blast syndrome, multiple contusions, lacerations, sprains, shock.
17. Blast syndrome, contusions, lacerations, shock, first degree burns.
18. Blast syndrome, contusions, shock, broken lower leg.
19. Lacerations, contusions, blast syndrome, shock.
20. Lacerations.
21. Severe contusion of back from flying missile.
22. Severe lacerations of head. Cerebral concussion (struck by vacuum cleaner).
23. Lacerations of face, head and hands.
24. Lacerations of face and head.
25. Contusions, cerebral concussion, second degree burns of face.
26. Contusions, concussion, shock, sprained ankle, and wrenched shoulder.
27. Lacerations of face and scalp. Concussion, blast syndrome. Back injury.
28. Broken leg, contusions, shock, back injury.



29. Lacerations of face and forehead.
30. Concussion (cerebral), contusions, shock.
31. Multiple compound fractures of feet, legs and thighs. Compression fractures of three vertebrae, severe cerebral concussion, multiple lacerations of face. Fracture dislocations of both ankles. Internal injuries (Cardiac and pulmonary contusions). Severe and prolonged shock.
32. Fractured pelvis, multiple lacerations of head, severe contusions of head and face, severe cerebral concussion, ruptured bladder, compression fracture of vertebrae.
33. Bilateral compound fractures of legs. Blast syndrome, contusions, shock.
34. Fractured right leg, contusions, shock.
35. Multiple lacerations of face and head. Blast syndrome.
36. Multiple lacerations of face, blast syndrome, back injury.
37. Lacerations of face and hand, blast syndrome.
38. Lacerations of head and face, blast syndrome.
39. Knocked down but unhurt (protected by apparatus).
40. Knocked down. Able to continue on duty, but hospitalized two days later from blast syndrome (protected by apparatus).
41. Laceration of scalp. Knocked down but not otherwise hurt. Bruised and shocked.
42. Laceration of face. Knocked down but not severely hurt. Bruised and shocked.
43. Knocked down but not hurt.
44. Multiple contusions, lacerations of face and hands. Blast syndrome.
45. Blast syndrome, shock, contusions, back injury.
46. Blast syndrome, shock, contusions, lacerations of forearm and scalp.
47. Broken right ankle, shock, blast syndrome.
48. (Police officer) burns and smoke inhalation.

*Blast syndrome is the name given to a combination of symptoms seen in most of the men close to the explosion and included nervousness, headache, backache, insomnia, pain in the chest, and some shortness of breath.

ankles, and in most cases of the legs and thighs as well. So rapidly did the floor rise that there could be no transfer of momentum up the legs to the torso, hence the extremities shattered. This type of injury was seen in the United States Navy during World War II as the result of internal explosions buckling ships' decks. Secondly, these men were struck and tumbled about by merchandise and furnishings so that there were many cases of cerebral concussion and multiple lacerations and contusions.

Group (D) included all those outside the building. These were stuck by a tremendous variety of flying missiles, from splintered glass to heavy television sets and refrigerators.

Fireground first aid consisted of (A) control of bleeding, (B) immobilization of fractures, and (C) treatment of shock. Many men were badly cut, and severe hemorrhage was of immediate concern. Pressure flandages were effective in every case. No tourniquets were used or needed. Immobilization of fractures was accomplished mostly by the use of manual traction and blanket splints. There was little opportunity for traction splints to be used because of the great number of persons requiring immediate help and the few people there to give it. Traction splints were used in one case only, fracture boards were used to move two with back injuries, and in one of these modified traction to a broken leg was used with the end of the fracture board providing a fulcrum.

FOUR hours earlier, a runaway passenger train had crashed into the Union Station concourse injuring more than fifty people, most of them not seriously, however. Some of these were still receiving treatment in Emergency and Casualty Hospitals which handle most of Washington's emergency work. In addition, these hospitals had their usual routine emergency cases. Onto these already overtaxed facilities were poured the suffering victims of the explosion. Hospital personnel responded magnificently. Casualty routing from the accident scene was attempted and was partially successful.

In general, it is considered wise to utilize first the services of hospitals with good emergency room set ups as they are better equipped to give immediate aid. Hence at first, patients were divided between Emergency and Casualty Hospitals. When the magnitude of the job commenced to become apparent attempts were made to route victims to other hospitals. This was successful where vehicles operating on District of Columbia Fire Department radio frequencies were being used, but was unsuccessful with out-of-city units. These vehicles continued to transfer patients to the two emergency hospitals with which they were familiar, thus increasing their work load.

Distribution of Victims:

Casualty Hospital	22
Emergency Hospital	13
Gallinger Municipal Hospital	5
George Washington University Hospital	1
Providence Hospital	1
Walter Reed Hospital (Army)	1
Police and Fire Clinic	1

All members of the Board of Police and Fire Surgeons were contacted shortly after the explosion and responded to Emergency and Casualty Hospitals to take over the brunt of the work load. These in turn secured the immediate attention of specialists needed for injured men. (Neurosurgeons, orthopedic surgeons, plastic and maxillofacial surgeons, urologists, and internists all attended the stricken men within an hour.) The Red Cross was notified and saw that ample stocks of blood and plasma were available. The Salvation Army and the Friendship Fire Association both supplied coffee, cigarettes, and sandwiches at the scene of the accident.

THE cause of the explosion is still not definitely settled. Investigations reveal the following facts however:

The fire commenced from a ruptured jar of flammable rubber cement which gave off highly volatile and explosive vapors. As the fire progressed, at least thirty more such jars were known to have been involved. As the fire progressed further, it involved large numbers of closely stored automobile tires. It also involved shelving and packing materials.

The burning material was in a closely confined space, where adequate ventilation was impossible and much of the available oxygen was used up. This was confirmed by the high percentage of carbon monoxide found in the smoke just a moment or two before the explosion.

Immediate investigation after the explosion revealed that the soldered seams on the utility gas meters were open and both meters were burning. Just when this seam opened and just how much natural gas was released is not known, but the extremely high temperatures created in the confined area by the burning materials in the vicinity of the gas meters could have caused these seams to open during the course of the fire. When the gas or combination of gases reached the concentration necessary to produce an explosion, the fire already in progress ignited them and the explosion occurred.

A NUMBER of important lessons are highlighted by this disaster.

(1) PROTECTIVE CLOTHING

In every case, the severity of the injuries received was lessened when the victim wore regular clothing. (Turnout coat, boots, and helmet.) Helmets in many cases prevented head injuries and were effective in preventing burns. Two men standing side by side inside the building were exposed to almost identical violence. One wore a helmet, the other did not. The one who did not suffered severe cerebral concussion. Men who had removed helmets in order to adjust self-contained masks and had not replaced them suffered more extensive burns than those wearing helmets. Full face masks prevented burns whereas the goggle, noseclip, and mouth piece outfits used on the McCaa mask permitted the wearer's face to be burned. Running coats were definitely helpful in preventing body injuries from flying objects and effects of blast. Members of the Fire Marshal's office and men working in areas where coats did not appear to be needed were more severely injured by the same force than those wearing coats.

(2) COMMUNICATIONS

Radio again proved its immense value in situations of this type. However, much better coordination of rescue units from adjacent areas

(*Please turn to page 26*)

Upper County Fire Control Center

By Fire Marshal Charles H. Howe, Jr., of Montgomery County, Maryland.

THE Montgomery County Department of Public Safety, Division of Fire Protection, in cooperation with the Division of Civil Defense and the volunteer fire departments of Damascus, Gaithersburg-Washington Grove, Hyattstown, Rockville and Upper Montgomery County, has established and now placed in operation a fire report and control center, where all fire and emergency calls for the entire "up-county" area are received and referred to the appropriate fire departments.

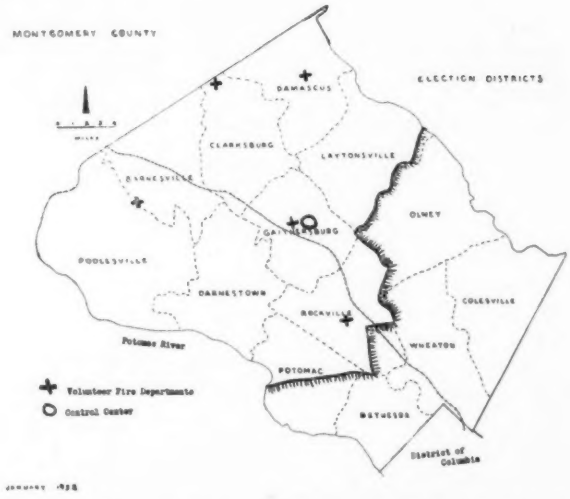
The control center, which is located at the Lateral Roads Department Building, Washington Grove, contains a sixty position PBX board with direct telephone lines to each of the five up-county fire departments, to Montgomery County Police at Rockville, and the Silver Spring Fire Board. There also is a 250-watt radio transmitter operating on the county fire department frequency. The radio transmitter provides communication for the 12 pumpers, 3 ambulances, 1 squad and 1 chief's car in the upper county fire departments and for 3 cars in the county fire marshal's office.

The control center is manned and operated twenty-four hours a day by county employees of the Division of Fire Protection. These dispatchers handle all fire and rescue calls transmitted to this center, operate the sirens at the fire stations, advise the fire departments of the location and type of call and maintain radio communications with the fire apparatus while it is out of the fire station.

In addition to handling fire and rescue calls, the fire alarm dispatchers are continually studying the geography of the territory and correcting, revising and bringing up to date a visible fire record of all streets and roads in the upper county. They also prepare a daily report of all fires in the county for the county fire marshal's office and maintain a journal of the activities of the control center.

The dispatchers received training in the operation of the PBX board at the telephone company's school in Baltimore and were instructed in the operation of the radio transmitter by Lew Rice, County Radio Engineer, the Silver Spring Dispatchers and Montgomery County Police.

PRIOR to the establishment of the control board, all up-county fire department radios were on the same frequency as the police department and all radio messages were handled by the police radio dispatcher in Rockville. This had many disadvantages, one of which was, that during a fire emergency the police radio dispatchers were overtaxed with radio messages and the county fire departments could not communicate directly with one another when both were operating on a large fire. Also prior to the establishment of this center, the nearest fire company was not always called as the telephone company would not assume the responsibility of routing fire calls. The telephone operators would always call the fire company located on the exchange area from which the call originated.



Map of Montgomery County. The "up-county" volunteer fire departments served by the new control center are shown northwest of the shaded line. The control center is centrally located in Gaithersburg. The lower portion of the county has three control stations serving 67 pieces of apparatus in 10 fire companies. The same radio frequency is used for fire control.

For Civil Defense, the upper county fire board will provide a center of communication for the county fire departments in event a bombing destroys the control center in Silver Spring. Also in event of an air riad, the fire sirens on the up-county fire stations, which are the only air raid warning devices in this area, can be operated simultaneously from the control center.

The total cost of equipping this center including furniture, office equipment, radio equipment and transmitter tower was $6,500. This was provided by County Civil Defense funds.

Interior view of control center. Telephone switchboard is at left. Radio dispatcher is at desk in center.

WITH the new fire control center in operation, the up-county fire departments have been able to initiate a mutual aid plan whereby more than one department will respond on building fires in the outlying and border line areas and on alarms in special hazardous occupancies such as rest homes, schools, mills and factories.

The control center is now in full operation to all of the fire departments except Damascus, which installation is being delayed because of difficulties in obtaining telephone trunk lines and radio equipment.

FIRES IN THE NEWS

Lumber Yard, Burbank, California, April 12. (*Associated Press Wirephoto.*) Fire had fully involved 4 storage sheds and an office building in this lumber yard when fire fighters responded to a telephone alarm. Hose streams were directed to cool exposures and confine main body of fire. Loss was in the vicinity of $175,000.

Nester Building, Marquette, Michigan, April 5. (*Lou Armstrong Photo.*) Four engine companies of the Marquette Fire Department and a pumper from the Negaunee Volunteer Fire Department responded to alarms when this unsprinklered 4- and 5-story brick building was involved by fire. Delayed discovery and vertical openings contributed to the estimated loss of $315,000, as the three upper stories of the building were destroyed.

Apartment house, Kansas City, Missouri, April 1. (*Associated Press Wirephoto.*) Three fire fighters were killed when a porch collapsed and four tenants lost their lives when fire involved this 3- and 4-story apartment house. Fire started in trash container and spread rapidly through wood floor joists and partitions and stairway openings. Lack of alarm and standard fire escape facilities may have contributed to loss of lives.

Haber Corporation, Chicago, Illinois, April 16. (*United Press Photo.*) At least 35 persons lost their lives and 37 others were injured when an explosion and fire devastated this 4-story brick building used for manufacturing metal parts. The building was heavily involved when first apparatus responded. A total of 25 engine, 4 squad and 2 ladder companies were used, in addition to 2 high pressure units, 2 water towers, and 2 light wagons. Loss was estimated at $255,000.

Jamaica Race Track, Queens, New York City, March 22. (*Associated Press Photo.*) Two fire fighters were injured and 6 horses perished in this racing stable when fire started in the eastern end of the building and spread rapidly through the combustible structure, necessitating a second alarm response.

Shell Oil Company, Los Angeles, California, March 29. (*United Press Photo.*) A metal fill pipe of magnesium construction was dropped on the concrete floor of the loading dock at this bulk petroleum distributing plant. Fire started and spread rapidly to involve the entire loading dock and destroyed two trucks standing near-by.

Occupational Hazards of the Fire Service

By Carl W. Irwin, M.D., Bangor, Maine, Surgeon, Association of Fire Chiefs of Maine

PART I

Most thinking people, including those actively participating in the Fire Service, realize and accept the spectacular hazards of fire fighting as "part of the game." Too few, however, seem to be aware of the less dramatic but no less dangerous aspects of a fireman's profession. Many of these aspects are so routine as to be regarded lightly. Even more serious, little is done to lessen these hazards. This series of articles has been prepared to help the members of fire fighting organizations recognize and possibly prevent some of the things that cause loss of lives and services of experienced fire fighters.

OCCUPATIONAL hazards can be divided into two classifications. The first of these — *injury* — is usually obvious. The fireman breaks an arm or leg, has it treated, and eventually returns to duty. There is rarely any question that the injury was related to his work, that he was disabled as a result of this work, and is entitled to the financial or other help provided. The second — *disease* — is much less obvious. Either *disease* or *injury* may be primary or secondary. The primary disabling conditions are those that are wholly due to fire department activity. The secondary are those which have been aggravated by such activity.

Compensation of disabled firemen is astoundingly inconsistent. Most firemen are protected against excessive financial loss due to injury. Many are protected against such loss due to disabling disease if it is of primary type; that is, if it is obviously and incontestibly due to his work. However, the secondary disabilities are difficult to relate to occupation. Many of these become worse over a long period of time, or are aggravated by many incidents in the day-to-day life of the fireman. The problem has been complicated still further by the insistence of some groups that every disability is related to work and entitles the man to compensation. Naturally, municipalities and some insurance carriers dispute claims. As a result, a great deal of prejudiced "information" has been circulated, slanted to suit the objectives of one or the other of these pressure groups. Between these two opposing interests stands the judge, the compensation board, or the Civil Service Commission. The disabled fireman may be the loser.

Causes of Disability — the Individual

IN a high percentage of cases of disability, the fireman himself is the cause. The individual must be considered first. His inadequacy may be either physical or mental. Actually, the mental factor is probably more important than the physical in most cases, though they are associated closely.

All of us are familiar with the person who can not keep his head under stress. He is the one who becomes too excited to think clearly. There is no point in detailing the stupid things that are done by excited persons. A certain amount of excitement is unavoidable in any emergency situations. However, if a fireman becomes too excited to protect himself and others from avoidable injury or illness, he is a liability rather than an asset.

Equally serious is fear under stress. A scared man is a hazard, for his thinking ability and his decisions are warped by this fear. We should be careful to distinguish between fear and respect. A man who does not respect his enemy, be it fire, flood, or man, is a fool. The challenge of fire fighting is based on this respect for a dangerous, tricky, and persistent enemy.

Fatigue is a recognized condition of prolonged physical effort in fire fighting or any other profession. In industry, it is combated by rest periods; in fire fighting, this may not be possible. Industry is aware that fatigue may slow the individual both physically and mentally. The fire service must recognize the fact that fatigue may be fatal.

THE greatest of the mental hazards of the individual is inadequate training. If the man does not know what he is doing, or why he is doing it, there is a good possibility that he will make a mistake. In fire situations, the results to himself or others may be tragic. Any fireman can give examples of this: The use of the wrong type of extinguishing agent or appliance; the man who didn't recognize a specific risk; or the man who couldn't get his mask to work. The "why" is just as important as the "what." A person who can not reason out the moves he is making will not make the proper ones under nonsupervised conditions.

All of these things may contribute to the inexcusable hazard of carelessness. This is just as much an affliction of the thirty-year man as the newest rookie. It may come from familiarity with routines, and contempt for the hazards involved. It may be due to lack of knowledge. It may be pure laziness. Often it is simply a matter of poor training, or poor discipline.

Mental infirmity or disease affects about 8 to 10 percent of our population, and the fire service is not immune to this. This disability varies from the mildly-inadequate individual, through the psychopath, to the obviously-insane person. This will be discussed at greater length later in this article.

THE physical status of the individual is of obvious importance. The fireman with a physical defect constitutes a risk to himself and his fellows, from several standpoints. In the first place, he may injure himself. In the second place, he may be responsible for the injury of others. And, in the third place, he may not be able to carry out the task required of him . . . and might just as well not be there at all.

Again, the importance of training must be stressed. If the fire fighter is not physically trained to carry out his mission, all of the schooling in the world will not help him put out the fire. He must be capable of sustained physical effort, and this objective can be reached only by systematic, consistent, and thorough physical training. This training can not be confined to ladder and hose evolutions, because the physical effort of fire fighting is much more than this. He must be able to do the routine chores of a fireman, with a sufficient reserve of physical ability and training to do the other things demanded of him in an emergency situation.

Causes of Disability — the Equipment

ANOTHER cause of disability is inadequate equipment. This inadequacy may be due to actual lack of equipment, or to the improper functioning of equipment Naturally, we can not expect the small village department to have the elaborate, expensive, and varied equipment used by a large city department. On the other hand, there is less demand for such equipment in a small department. There are certain basic items, of course. These would include appropriate protective clothing, mechanical equipment scaled to the type of hazards covered, and adequate life-saving apparatus. Most departments are aware of their requirements, and many actually over-estimate the equipment needed. In deciding on these requirements, mutual aid should be considered, but each department should be as self-sufficient as possible.

Firemen in a given department come to know their available equipment and apparatus. They learn of the shortcomings as well as the advantages, and apply this knowledge at each fire. If the equipment can not do the job expected of it, a disability or even a fatality may result. Poorly-functioning equipment is worth less than nothing; it gives a false sense of security. It is important that equipment be kept in good operating condition, and that it be inspected regularly. It must be kept clean. Each fireman should know what equipment is available, where it is kept, how it is used, and why it is used. Moreover, he must know that it will work when he needs it.

Causes of Disability — the Situation

TWO causes of disability have been discussed — the inadequate individual and inadequate equipment. These are far more important than the last of the causes of disability: the situation. Undeniably, there are situations that can not be predicted or avoided. A wall may collapse unexpectedly. Gases may explode. Live wires may fall. But these things are statistically in a minority as a cause of disability, as we will see in discussing specific types of illness and injury related to the work of the fire service.

In a special group is the "calculated risk." Here, the chance of disability is balanced against the chance of saving life or property. I will never be convinced that the savings of any amount of property is worth the life of a single fireman. If the problem involves saving life, it is traditional that the fireman will risk his life to save that of another. Training, experience, calm judgment and common sense should lead to the decision of such a calculated risk. There is no logic in an heroic but ill-advised rescue attempt that results in two deaths instead of one.

In summary, causes of disability can be classified as due to the individual, his equipment, or the situation. Our next problem is to define those disabilities most common to the fire service.

Types of Disability: Respiratory

OF ALL the diseases related to fire department work, those of the respiratory system are most common. Respiratory diseases include abnormalities of the nose, sinuses, trachea (windpipe), bronchi (tubes), and lungs. They vary from diseases that are nuisances to those that are fatal.

In the fire service, asphyxia is almost a daily hazard. The term "asphyxia" means lack of oxygen, and should not be confused with irritation or poisoning due to various gases. If there is not sufficient oxygen for normal needs, a definite sequence of changes takes place in the body. There is gasping for breath, and the heart speeds up. This is followed by weakness, confusion, and loss of consciousness. If the fireman can be brought from the danger area at this stage, he may regain consciousness with no bad after-effects. However, if he is exposed to this hazard year after year, there is undoubtedly some permanent damage to his lungs and brain.

Though less dramatic, repeated irritation of the respiratory system by smoke may be even more dangerous, and more disabling. The early effects of smoke are known to all of us. The eyes water, the nose runs, there is coughing and gagging, and occasionally vomiting. If this occurred once every six or eight months, there would be little danger of serious after-effect on a long-range basis. In fire departments, the exposure may be much more frequent. Chronic sinusitis is a common result, and may be indicated by headaches, frequent colds, chronic cough, and yellowish sputum. In the lungs, frequent inhalation of irritating smoke may result in scarring, or "fibrosis," which interferes with breathing.

Poisonous gases may have either irritating and asphyxiating effects, or both. Carbon monoxide, for example, acts by replacing oxygen in the blood and results in asphyxia. Chlorine, on the other hand, is essentially a lung irritant. Some of the gases used in fumigating act in the same way as carbon monoxide, but are fatal in much smaller amounts.

Pneumonia is a recognized hazard of fire fighting. The reasons for this are obvious. The fireman works long hours in smoke and fumes. He is exposed to cold weather. His clothing may become wet. He is under severe physical stress. In other words, any of the conditions mentioned above may result in lung irritation and infection. If the fireman is lucky, and has prompt and adequate medical care, he recovers completely from this lung infection within a matter of a few days. If the pneumonia is severe, he may be disabled for many weeks. More important, such an episode of lung infection makes him less able to stand exposure at a later date. Each time the man has a lung infection, there is a certain amount of scarring of the lungs.

Nearly everyone has tuberculosis at some time in his life. Usually, this is a very mild and insignificant illness, which heals with only slight scarring of a small part of the lung. This inactive, or "healed" tuberculosis causes no disability. But repeated lung irritation— by smoke, gases, or pneumonia — may result in the reactivation of this disease. Similarly, exhaustion may contribute to such reactivation. From a medico-legal standpoint, it may be difficult to prove that this disability is related to fire fighting. As a result, the fireman may suffer a long, disabling illness without the financial compensation due him. Tuberculosis falls in the group of secondary disabilities, aggravated but not caued by fire department activity.

Even more controversial is cancer of the lung. Many physicians now feel that such cancer may be related to irritation by smoke or fumes, but this is difficult to prove.

Fortunately, nature provides many danger signals before the person is in serious difficulty. In respiratory disease, the earliest of these may be a cough. Any fireman who has a persistent cough should have an adequate physical examination, and will probably require X rays. Even if these are entirely normal, he should be extremely careful about further exposure to the respiratory hazards mentioned above. We must be realistic about this, and accept the fact that a certain amount of exposure to smoke, fumes, weather, and stress is unavoidable. On the other hand, the use of common sense will significantly lessen the danger of increasing his disability.

The man who coughs up blood may be in real and serious difficulty. This may be an indication of one of the more dangerous respiratory diseases. The blood may be either a brownish material or may be bright red. In either case, there is a definite possibility that the man has either cancer or tuberculosis. He must seek medical attention promptly, and he should not be permitted to return to any fire service activity until his physician can assure him that he is not endangering himself or others. Furthermore, he must be required to have repeated examinations at suitable intervals; many early cases of tuberculosis or cancer cannot be proven at the time of a single examination, no matter how thorough.

Easty fatigue is another danger signal of respiratory disease. Along with this, there may be shortness of breath. These danger signals can not be ignored. Discovered in time, many respiratory diseases can be treated with good results. This treatment may require that the man limit his activities, or even leave the fire department. It is always difficult for the fireman to accept this, but it may mean the difference between a comfortable, useful life and an uncomfortable, lingering disability. It may mean the difference between life and death.

Types of Disability: Cardiac

DISEASES of the heart and blood vessels are referred to as "carido-vascular diseases." Usually, the heart disease is not primarily due to firemanic work, but may be aggravated by it. Many of these diseases start in childhood, and can be detected by adequate physical examination. Obviously, men with such a disability should never be permitted to enter the fire service, either as paid or volunteer firemen. Other heart disease is the result of aging, or of other changes in the body. The heart may do very well under average conditions of activity, but is not able to stand the load imposed by an emergency service. Let us look at a fireman with heart disease. In his time off, he is able to paint his house, putter around in the garden, or climb a flight of stairs. Then he comes to work, and sits around the station for an hour or so. He looks just as healthy as any other fireman. Then the bells ring. He jumps up, runs to the apparatus, and goes to a fire. There, he climbs ladders, drags hose lines, and works in smoke. To add to the insult to his heart, he is working against time. He may work for many hours under this physical and emotional pressure. And he may die.

Again, nature is kind. The heart is a sensitive part of the body, and few people with heart disease die without some sort of warning days or years ahead. The most dramatic warning sign is chest pain, which may extend into the left arm. This is usually sharp, knife-like pain which seems to start just beneath the breast-bone, or sternum. Frequently, it comes on with exercise. It is usually relieved by rest. Shortness of breath is another excellent warning. As mentioned above, it may also be a warning of respiratory disease. It may be noticed for the first time in climbing a flight of stairs, or may not be noticed except under the unusual strains at the fire ground.

Swelling of the ankles is a late sign of heart disease. This sign means that the heart is just not capable of carrying the load imposed on it. High blood pressure may be found on a routine physical examination, and is a good indication of the condition of the blood vessels.

A related problem, especially in the colder parts of the country, is the fireman whose blood vessels are overly-sensitive to cold. In these people, exposure to cold results in "clamping down" of the arteries, so that the arms or legs do not get enough blood. These parts of the body become cold, dusky, and painful. Obviously, a person with this disease should not risk gangrene by undue chilling.

These warning signs of diseases of the heart and blood vessels can not be disregarded. The fireman who notices any of these symptoms should have a complete examination. The recommendations of the examining physician must be followed. Many individuals can be treated successfully if the diagnosis is made early and the patient is willing to follow instructions. In many cases of heart disease, the person will have to stop doing the strenuous aspects of fire fighting. Even the most ardent fireman will agree that it is better to stop fire fighting than to stop living.

(*The concluding portion of Dr. Irwin's article will appear in a forthcoming issue of* FIREMEN. — Ed.)

Chemical Plant Explosion and Fire

ONE man was killed and 20 employees and 2 fire fighters were injured when an explosion and fire occurred in this Peabody, Massachusetts, building on April 30. The building was used by the American Polymer Corporation for the production of chemicals for the U. S. Government. Peabody fire fighters responded to telephone and box alarms with 5 engine and 1 ladder company and received mutual aid assistance from three other cities. The explosion of acetone vapors released from a reactor is one possible cause being investigated. (*United Press Photo.*)

The Hydrant "Chuck"

By Warren Y. Kimball

ONE of the readers of the NFPA publication "A Selection of Fire Department Terminology" asked to see a photograph of a "chuck" hydrant as described in that publication. Accordingly, the assistance of the Boston Fire Department which carries several types of chuck hydrants was enlisted in obtaining the photographs reproduced on this page. The definition in "Fire Department Terminology" reads:

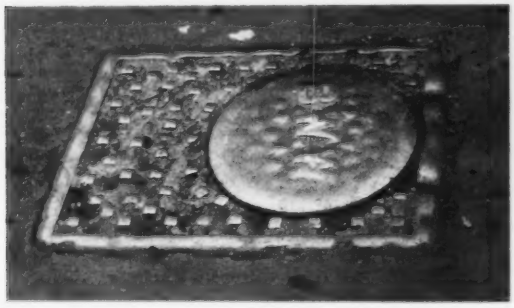
"Chuck. A portable hydrant carried on fire apparatus and having from one to four independently gated connections for fire hose or pumpers, and which is designed to be screwed to special flush hydrant connections on high service fire mains. In other words a portable fire hydrant carried on fire apparatus for use when needed."

The chuck type hydrant which was common in a number of the older cities especially in New England, had certain inherent advantages. The flush type hydrant receptacle may be installed in streets, alleys, water front areas, airport runways and other places where it would be difficult to locate a post hydrant satisfactorily or where a post hydrant would be subject to mechanical damage. A chuck hydrant "set" over a large main provides a generous water supply. It was not uncommon in the days of steam fire engines to see four steamers pumping from the same chuck at a convenient location. It is seldom that more than two motor pumpers share the same chuck.

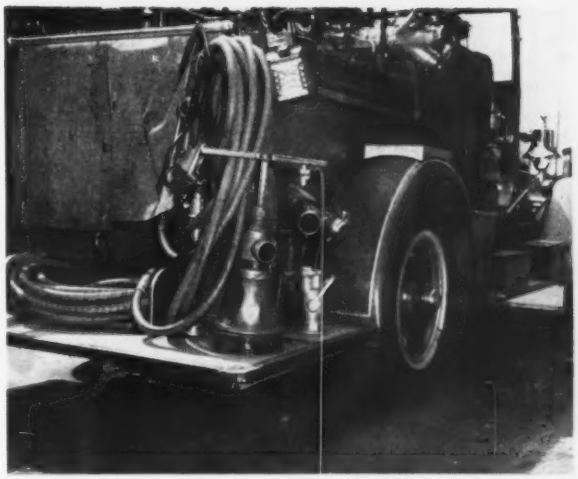
The fact that the flush hydrant outlet is located in the middle of the street removes the pumpers from the danger of falling walls and keeps them out of the way of ladder trucks. In fact, Boston Fire Department rules do not permit pumpers to connect to a post hydrant in front of a burning building.

One drawback with the chuck hydrant is that the covers over the hydrant outlet boxes in the street must be kept covered with rock salt in the winter as a precaution against freezing. Each engine company is required to salt the hydrants in its first due district. This helps the firemen to remember the hydrant locations but the locations are also indicated by directional figures on utility poles or on the walls of nearby buildings.

In Boston, the chuck hydrant is actually an auxiliary to thousands of low-pressure post hydrants and hundreds of post type high-pressure hydrants with four outlets with independent gates served by separate high-pressure fire mains.



Outlet box for flush hydrant located in street. The round cover is pried off and hydrant chuck screwed into connection in water main.



The booster and "hose wagon" of Engine 23 showing "Coffee Pot Chuck" on rear step. This device is frequently used when it is desired to leave a watch "detail" at the scene of a multiple alarm fire permitting engine companies to return to quarters during final overhauling. Several other details of this photo may be of interest. Note the coil of booster hose with spanner belt ready for use by the small line man. The spanner belt has a rope hose tool and a "Wheat Light" (an individual wet-cell battery light provided individually for each hoseman and ladderman in the department). An "all service" gas mask is also carried at this position for use by the small line man. Two self-contained masks are carried on this apparatus for use in irrespirable atmospheres. Note both adjustable and fixed pattern 2½-in. fog nozzles on the back step.

Watch line connected to a "Coffee Pot Chuck." Most of the chuck hydrants are connected to "high service" mains providing better pressure on watch lines than available from post hydrants on low service mains. Usually "details" are made up by assigning one man from each company in the district (battalion) where the fire has occurred, or at very large fires one man from each company in the division (several districts commanded by a deputy chief) in which the fire has occurred.

Engine 23 pumper connected by hard suction to rear inlet of pumper from Lowry chuck set in flush hydrant outlet box. Note "manhole" cover on ground at right. First alarm companies would use the 3½-in. "soft suction" on the rear step at left. Hard suction is only used for drafting or at multiple alarm fires. Note that the divided hose body of this pumper which carries both 2½-in. and 3-in. hose has a removable wooden deck covered by weatherproof covering. The large company numerals are very useful in identifying the particular unit at multiple alarms where numerous pumpers are in attendance.

Industrial Fire Protection

How Fire Spreads

AT THE Rock Island Arsenal, Rock Island, Illinois, the fire department, headed by Chief D. W. McCorkle, recently held a demonstration to obtain data on fire spread in piled wooden containers. As the pictures at right show, 6 stacks of the type of wooden containers used by the Ordnance Corps were arranged to duplicate stacks and aisle spacing in warehouses. The stacks were equally spaced, approximately 12 feet apart. The containers in one of the stacks had been surface treated with fire retardant material.

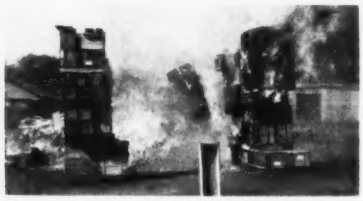
A fire was started in one of the stacks in the left row by igniting 2½ gallons of gasoline. A wind velocity of approximately 2 miles per hour existed during the entire demonstration.

As the pictures show, after 10 minutes the heat of the burning stack became intense enough to induce smoldering in the facing sides of all boxes in the right row. At 12 minutes flames broke out in the boxes of one of the stacks in the exposed row. At 14 minutes, after two of the stacks in the left row collapsed, the exposure distance was shortened and flames were evident in the treated pallet stack. At 17 minutes all stacks showed flames and the treated stack collapsed. After 24 minutes of burning all stacks were completely involved. They collapsed 35 minutes after the start of the fire.

1) Start of fire. Single stack in center background was treated with fire retardant. Materials in other pallets were untreated.

5) 16 minutes. All stacks in right row are involved in flame. Collapsed stack in left row has shortened exposure of treated stack.

2) 10 minutes. The first involved stack has started to collapse and heat has induced smouldering on sides of boxes in right row.



6) 17 minutes. Treated stack begins to collapse after exposure to intense heat from collapsed stack in left row.

3) 12 minutes. Two stacks in left row have collapsed. Flames have broken out in one of two untreated stacks in right row.

7) 18 minutes. All stacks in both rows are involved in flames.

4) 14 minutes. Flames have developed in treated stack.

8) 24 minutes. Last stages of fire. All stacks collapsed 35 minutes after start of fire.

THESE pictures help to emphasize several factors that managers of storage facilities should consider. While improvements in mechanical handling equipment have made the piling of heavy containers and warehouse stock easier, care must be exercised to avoid creating conditions that could lead to excessive fire loss.

The piling and distribution of warehouse stock should not exceed the safe floor loads of the building. Aisles should be clearly marked and of sufficient width to facilitate passage of personnel and equipment. In general they should not be less than 5 feet wide, but if mechanical handling equipment is used a minimum width of 8 feet is recommended.

The height of piled stock in most cases should not exceed 10 feet. If automatic sprinkler protection is provided at least 18 inches of clearance is necessary under the sprinklers to allow proper distribution of the water spray.

Consideration also should be given to possible fire fighting in the storage area. Clearance of 3 feet above the piled stock is necessary to allow application of effective hose streams if fire starts. Employees should be trained in the use of extinguishers and other fire protection equipment. They should also be familiar with the location, distribution and types of stored materials. Such knowledge can be very useful if fire starts since many times it is possible to remove stock from an involved area or at least to save some portions from unnecessary water damage.

Some detailed recommendations on arrangement, handling and fire protection of stored materials are contained in NFPA No. 231 — General Storage Standards, available as a separate pamphlet (25 cents) and in Volume III of the National Fire Codes. Both may be obtained from the NFPA Executive Office.

Trained Plant Fire Brigade In Action

THE fact that a trained fire brigade operated calmly and efficiently undoubtedly helped to avert a large fire loss when an explosion and fire occurred in a gas separation plant recently in Avenal, California.

The plant consisted of 1-story office and laboratory buildings of wood frame construction with sheet iron covering, and a cooling tower 150 ft. in height, of wood construction. A 12-in. gas main with 420 pounds pressure ruptured early in the morning and gas apparently covered a considerable portion of the area before it was ignited, possibly from a boiler that was in operation. In the resultant explosion the office and laboratory were involved in flames, and one employee narrowly missed serious injury or death when he escaped into a compressor building.

A telephone alarm was transmitted to the municipal fire department, which responded with 3 pumpers and subsequently was assisted by the county fire department.

In the meantime plant employees, who had participated in regular monthly drills for this type of emergency, operated hose streams to cool exposed adjacent plant facilities and closed valves to stop the flow of gas. These actions gave confidence to arriving fire fighters from the municipal and county fire departments and they were able to confine the fire without being concerned about subsequent explosions.

Spontaneous Ignition in Woolen Blankets

ACCORDING to the Table of Materials Subject to Spontaneous Heating, contained in Volume I of the National Fire Codes, a moderate tendency to spontaneous heating may occur in wool wastes. The fact that the wastes may contain oil and other foreign products resulting from the weaving and spinning processes increases the possibilities of heating occuring during storage.

Indications that spontaneous heating may also occur in finished wool blankets are supported by a report from a lieutenant of a fire department that serves a large state institution. Recently the lieutenant was called to the laundry building of the institution by a watchman and was informed of an unusual odor emanating from 150 bags which were filled with laundry. The lieutenant turned off electric lights in the building and directed the beam of his flashlight over the piled bags. Smoke from the bags was visible so he called for two engines from the fire station.

When the crews arrived the bags were carried to an outside courtyard and cut open. As each bag was opened it burst into flames, which were extinguished by a pre-laid booster line. Each of the bags contained heavy woolen blankets which had been washed that day and might still have been damp. Other bags in the pile which did not have blankets did not heat.

PROPER storage and ventilation will help to minimize the possibilities of spontaneous ignition in wool. Wool with a high moisture content should be dried thoroughly before it is baled or stored. If heating is apparent in quantities of wool it is advisable to have fire fighters and hose streams available before further investigation.

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NFPA Member Departments

Protection Hose Company No. 1, Thorold, Ontario

DURING the week of August 11–15, 1953, this volunteer fire company will celebrate the 100th anniversary of its organization. Plans have already been made for week-long activities, which will include a carnival and a parade with guest fire department units Ontario, New York, and Pennsylvania.

Traditionally, the members of this fire department combine their efforts during such holiday occasions to provide entertainment for children from a local Children's Aid Society home, who are provided transportation of the fire apparatus and are allowed to participate in all of the carnival's activities. The children are also taken on a picnic by the fire fighters.

The fire company also sponsors a team in the local Midget National Hockey League whose players average 12 years in age. The team has won the championship two years in a row and the fire fighters have arranged to have each player receive an engraved trophy.

Chief Robert Gillies and Assistant Chief Robert Rodger head the fire company of 32 active fire fighters. Apparatus consists of two 750 gpm pumpers, a hose wagon, ladder truck, and an ambulance which was donated to the fire company by the townspeople. The ambulance is manned 24 hours a day and has averaged one call every two days since it was received in 1947.

The fire company takes special pride in its drill team which has won a considerable number of trophies throughout the United States and Canada. Members of the team wear black and white uniforms and silver helmets and specialize in intricate precision movements.

Members of the precision drill team of Protection Hose Company No. 1.

West Colesville Fire Company, West Colesville, New York

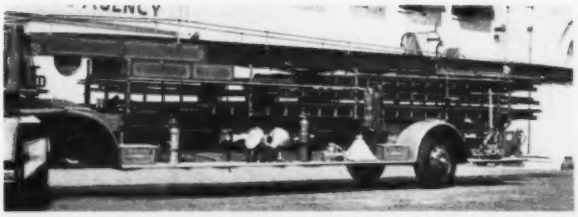
THIS volunteer fire company recently acquired the new fire truck shown above, according to Chief E. S. Youngs, Broome County Fire Coordinator, Port Crane, New York. The truck was built to specifications furnished by Chief Ernest A. Smith who heads the volunteer fire company. It is a Dodge "Power Wagon" mounted with a Hale HPG pump and has a 200-gallon water tank, 500 ft. of 2½-in. hose and 500 ft. of 1½-in. hose. The twin electrically operated booster reels are each 200 ft. in length and are equipped with Hardie fog nozzles. The truck and Chief Smith's station wagon are equipped with two-way radio connected with the Broome County Fire Control Center.

The West Colesville Fire Company was organized in 1946 and has an active membership of 22 fire fighters. Members have built a two-stall fire station through funds which they have raised through social functions.

Idyllwild Fire Protection District Idyllwild, California

CHIEF William M. Price heads this volunteer fire company of 12 active fire fighters protecting more than 2,000 acres of forestry area and a mountain village of 1,000 cabins. The fire station, shown above, houses a Ford truck with a 500 gpm Darley front mount pump, a 300-gallon water tank, and other equipment. Also shown is a Willys pickup truck with a McCulloch portable pump, and a 1951 Dodge truck mounted with a Seagrave high pressure pump, two booster reels, and a 270-gallon tank.

Members of the fire company have participated in fire training courses given by the California State Division of Industrial Education and maintain active membership in the California State Fireman's Association.



Memphis Ladder Truck Conversion — Before and After

UNTIL recently the Memphis, Tennessee, Fire Department had in service three ladder trucks with wooden aerials and ground ladders purchased before metal ladders became standard equipment in the department. As the chassis of these trucks were in good condition, it was decided to have the trucks completely rebuilt and modernized. This work, done by Peter Pirsch and Sons Co., of Kenosha, Wisconsin, resulted in saving the city half the cost of a completely new aerial ladder truck in each instance.

The upper photo shows one of these trucks as originally delivered with an 85-ft. wooden aerial. Below is the same truck chassis with a new 268 hp. motor, a 100-ft. aluminum alloy aerial, and 342 ft. of other aluminum ladders carried on the double-banked frame. These include: two 50-ft. extensions, two 35-ft. extensions, two 25-ft. straight, two 20-ft. straight, a 14-ft. extension, a 10-ft. extension, a 16-ft. folding, a 12-ft. folding, two 16-ft. roof, and two 14-ft. pompier ladders.

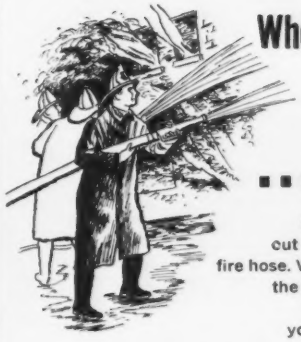
Note that a 25-ft. extension also has been provided on each side of the truck for quick access for rescue work. Each of these trucks, with their double complement of ground ladders, are manned by eight men on duty giving the department very effective truck service especially in high value districts where two such trucks may respond to first alarms.

Clinton District Volunteer Fire Department, Morgantown, West Virginia

CHIEF R. C. Lough, President H. R. Travis, and Secretary R. H. Moore are the elected officers of this volunteer fire department of 50 active members. The department was formed in October, 1948, and according to reports, is the first rural fire department to be incorporated in the State of West Virginia.

Members of the department have raised sufficient funds to pay for a 30 x 60 ft., 1-story concrete block fire station and fire equipment. The station houses a Studebaker truck mounted with a pump and equipped with a portable pump, ladders, back-pack pumps, hose and other fire fighting equipment.

Plans call for the purchase of an additional pumper to provide better protection for the rural area served by the department.



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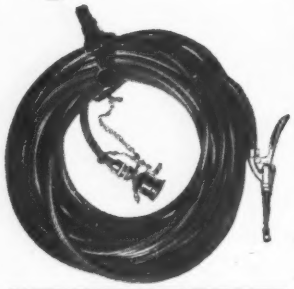

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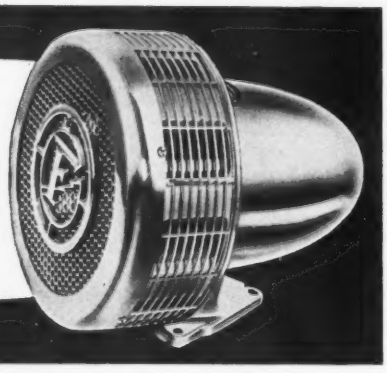

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Fireworks over Fireworks!

ANOTHER important victory in the campaign to promote safety in the use of fireworks was secured on April 23 when Governor John D. Lodge, of Connecticut, signed House Bill No. 11, "The Withe Bill," establishing the NFPA Model State Fireworks Law. The signing brought to a victorious conclusion the most bitterly fought campaign yet experienced in efforts to bring sanity and reason to the use of fireworks. The new law does not go into effect until October 1, 1953.

The margin of victory was dangerously narrow, the tie-breaking vote being cast by the Lieutenant Governor. Major credit for the significant victory belongs to the Honorable Stanley F. Withe, representative from Burlington and Chairman of the NFPA Committee on Public Relations who sponsored the bill. He had powerful allies in the national and local societies for the prevention of blindness and the two Hartford newspapers, the *Courant* and the *Times*.

Elsewhere in New England the legislatures of Maine and New Hampshire rejected bills which would have set aside the "model fireworks law" now on their books. The Maine Fire Chiefs Association has gone on record as unanimously opposing any change or repeal of the present existing law.

The NFPA model fireworks law is now in effect in about two-thirds of the United States. The fact that efforts have been made to modify or repeal some of the existing laws should serve as warning that vigilance is necessary to prevent the indiscriminate selling of fireworks.

Who Killed Cock Robin?

Courtesy of the Hartford Times

Public Service Award

FOR his "extraordinary efforts in promoting the cause of fire prevention and better housing," New York State Safety Director Thomas W. Ryan (right), of Buffalo, was recently awarded the annual Public Service Award of the New York State Joint Legislative Committee on Housing and Multiple Dwellings.

State Senator MacNeil Mitchell (left), of New York City, made the presentation. Also shown (center) is Captain Benjamin A. Czaja, Buffalo Fire Department.

Chicago Statistics

THE "*Chicago Fire Fighter*" Magazine contains some interesting statistics for 1952. Squad Company 3 was the busiest in the department last year with 4732 runs covering 16,327 miles. Hook and Ladder Company 11 was the busiest truck company with 1598 runs and 3176 miles. Ambulance 4 made 1652 runs covering 9093 miles. Engine 45 made 1327 runs and 1823 miles. The work of the engine while pumping, which would be equivalent to some miles of service for the pumper engine, was not given.

John J. Haberkorn was recently promoted to Chief Fire Marshal (fire chief) of the Chicago Department. This $12,500 post is the highest obtained by Civil Service examination. Albert Petersen moved up to First Deputy Fire Marshal.

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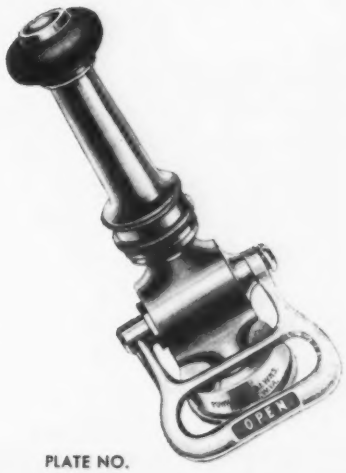

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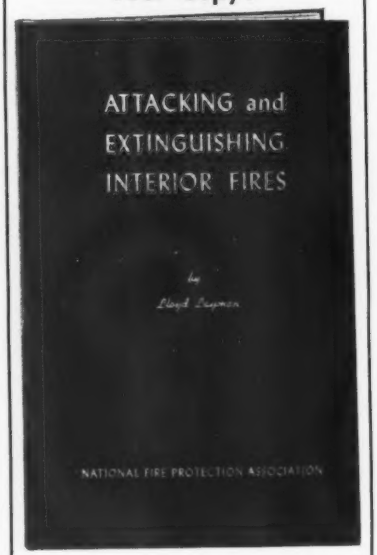

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Skyscraper Fire in Dallas, Texas

DALLAS fire fighters headed by Chief C. N. Penn (NFPA member), had to do a lot of climbing before they extinguished fire in the unfinished 36-story Republic National Bank building in that city on April 18. Fire apparently originated on the 20th floor level when an improvised warming can was blown over by wind and hot coals ignited wood forms used for pouring concrete. The only person in the vicinity was the watchman who was on the ground level. He was informed of the fire by a passerby who also called the fire department.

High winds scattered embers throughout the nearby business district and a five alarm response was necessary within 45 minutes. Fire fighters had to climb stairs and ladders to the 18th floor, then pull up 1½- and 2½-in. lines by ropes. Burning timbers and smaller particles dropped through the building, igniting other wood construction. In addition many burning embers were carried for several blocks by the wind. While most of these secondary fires were in awnings and roofs, vigorous patrolling action throughout the neighborhood was necessary to cover 10 different fire calls that resulted.

The main fire spread through the 18th, 19th and 20th floors despite the fact that fire fighters had managed to get three 2½-in. and four

1½-in. lines into operation on the 19th floor. Other fire fighters moved throughout the building and used pump tank extinguishers for the smaller fires.

Total response included 15 engine companies, 4 aerial truck companies, and a salvage company. Other companies were needed to handle the 10 calls for the exposure fires. On-duty response was 106 men while 116 off-duty personnel were called within half an hour after the first alarm. The fire was "tapped out" within two hours from the time it was discovered, but overhaul and salvage operations were continued for almost 24 hours.

Loss was estimated in excess of $500,000. Many horizontal beams from the 17th to the 21st floors were warped and bent during the fire. Initial tests, however, indicated that the vertical steel columns will not need replacement.

Busy New York City Fire Companies

FDNY Magazine for April, 1953, reported that the busiest engine and truck companies in New York City for 1952 were Engine Company 58 with 2,756 runs and 1,277 working fires, and Ladder Company 26 with 2,691 runs and 1,581 workers.

Battalion 12 had 3,633 runs (almost 10 per day) and 2,779 workers. The Fire Department of New York received 74,443 alarms in 1952, of which 52,741 were for fires. Of these, 52,701 were confined to the area involved and only 410 required more than 3 hose streams from engines or high pressure hydrants.

In the Congressional Record

ON THE occasion of the Twenty-fifth Anniversary of the Fire Department Instructors Conference the Honorable Clifford Davis, U. S. Representative from Tennessee, made a speech in the U. S. House of Representatives outlining the history of the fire service and citing many outstanding fires which point to the importance of fire protection and fire prevention. This speech was printed in the Congressional Record for Tuesday, March 10, 1953.

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☐ Send me sample decal imprinted "Chief: Fire Department." 10c enclosed for handling and postage.

☐ Order with quantities and imprint information is attached.

☐ Send me new brochure with further information.

NAME.....

ADDRESS.....

....
CITY COUNTY STATE

Fire and Explosion in Washington, D. C.

(Continued from page 11)

would have been possible if a common wave length had been available so that all activity could have been directed from a single source. Monitoring is not sufficient. In Civil Defense, such common wave length would be invaluable.

(3) Adequate first aid on the scene prevented many injuries from being aggravated and undoubtedly saved lives. Too much haste in removing victims would have required them to wait attention in overcrowded receiving rooms; this attention was given on the disaster scene.

(4) The need for a dispatching officer for ambulances and rescue vehicles on the scene of any disaster was again demonstrated. Better organization here would have resulted in a more even distribution of the casualty load.

(5) The value of self-contained breathing units was again demonstrated. In the thirty minutes of firefighting preceding the explosion, no cases of smoke inhalation occurred despite very poor atmospheric conditions. The need for frequent tests of smoke for carbon monoxide content was demonstrated. When concentrations are high, explosion is imminent. In addition, facilities for the rapid determination of the presence of unburned natural or manufactured gas would have been of great value.

(6) Gas cutoffs available apparently did not extend behind the meters so that gas leakage occurred as the result of severe heat exposure. In addition, the use of the more explosive natural gas, often under higher pressure than the manufactured gas formerly available in this community, suggests the need for re-evaluating the adequacy of equipment which handles it.

(7) Mutual aid was willingly and quickly given. The existence of formal mutual aid agreements *with preplanning* to cover various contingencies would have further expedited this aid. Enabling legislation to permit this to be accomplished was passed by Congress, but this has still not been accomplished. The existence of a "gentleman's agreement" is not adequate and, in many cases, leaves the amount of aid sought up to a single dispatcher who may not have either the information or the inclination to summon the proper type and amount of aid.

(8) The bad practice of storing highly flammable and explosive rubber cement in glass jars should obviously be avoided.

(9) The value of ambulance, first aid equipment, and, where possible, a departmental medical officer on the scene of every working fire is again demonstrated.

It is with regret that the writer omits from this report the accounts of the dramatic rescues and the great and unselfish heroism shown by every member of the department involved in the explosion. Considering the many men exposed and the extreme violence of the explosion, it is little short of miraculous that no lives were lost. Unfortunately, it seems likely that more than one fireman will be permanently disabled as the result of injuries received in this accident.

Since these men have paid a debt in blood and suffering, it behooves others of the fire service who may suddenly face similar disaster, to study the lessons taught by this fire and apply them in their own communities.

(1) The views contained herein are the writer's own and do not necessarily express the views of the District of Columbia Fire Department.

(2) The writer is indebted to Fire Marshal Ray C. Roberts for much of the technical information contained herein.

Important Publications for Rescue Squads!

Handling Common Contagious Diseases in an Emergency Ambulance

and

Methods of Artificial Respiration

Both of these publications, written by Dr. Claudy, are 16-page reprints from FIREMEN. Each reprint is 5½ x 8½ inches in size and may be obtained for fifty cents per copy. Generous discounts allowed for quantity purchases.

Write to:

National Fire Protection Association
60 Batterymarch St., Boston 10, Mass.

Membership Report

NFPA Welcomes:

The following fire chiefs and fire departments who have enrolled as NFPA Fire Department members, bringing the current total of such membership to 2,090 fire departments and 24,964 men.

Alabama: Chief W. H. King, Jr., Luverne Fire Department, Luverne; Chief Herman Scott, Prattville Fire Department, Prattville.

Arizona: Tombstone Fire Department, Tombstone.

Arkansas: Stephens Fire Department, Stephens.

Illinois: Chief Ray Heath, South Elgin Fire Department, South Elgin.

Indiana: Vincennes Fire Department, Vincennes.

Maryland: College Park Volunteer Fire Department, Incorporated, College Park; Luke Fire Company, Luke; Bowleys Quarters and Vicinity Volunteer Fire Department, Middle River.

Massachusetts: Sherborn Firefighters Association, Sherborn.

Michigan: Chief Lloyd J. Curry, Kalamazoo Fire Department, Kalamazoo; Chief Larry Cregg, Croton Township Fire Department, Newaygo.

Minnesota: Canosia Volunteer Fire Department, Duluth.

Nebraska: Chief Mike C. Novioki, Columbus Fire Department, Columbus; Gering Fire Department, Gering; Grand Island Fire Department, Grand Island.

New York: A. E. Crandall Hook & Ladder Company, Incorporated, Alfred; Chief John A. Duggan, Babylon Fire Department, Babylon; Chief Dominick Green, Frankfort Fire Department, Frankfort; Dix Hills Fire Department, Huntington; West Babylon Volunteer Fire Department, West Babylon.

Pennsylvania: Chief Earl L. Stern, Alert Fire Company No. 1, Downingtown; Chief Frank J. Steinmetz, Pittsburgh.

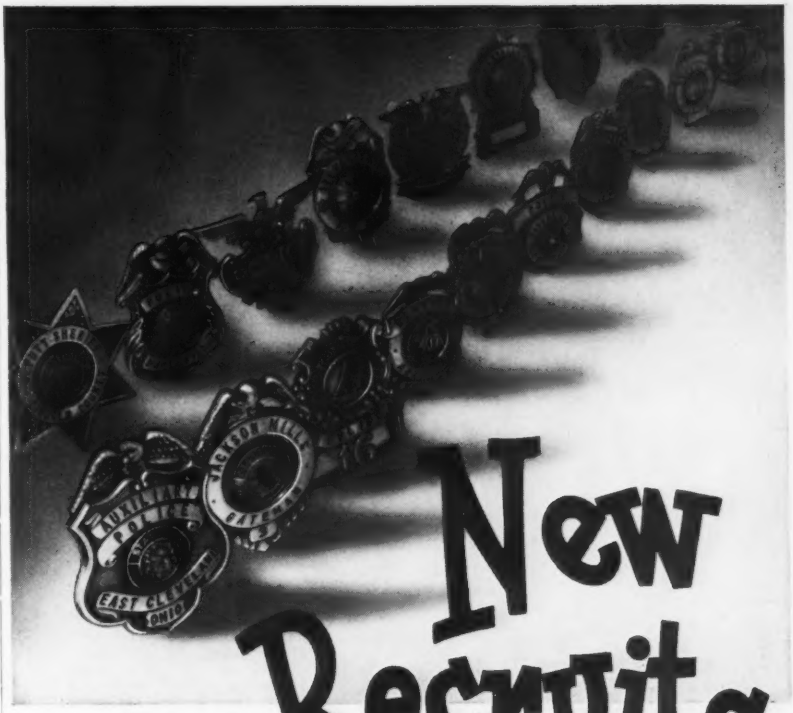
Virginia: Buckroe Beach Fire Department, Buckroe Beach.

Washington: Marysville Volunteer Fire Department, Marysville.

NOTICE

Old established industrial rubber goods manufacturer wants aggressive fire hose representatives who are interested in making money! A complete line of first quality municipal and industrial fire hose.

Reply Box F-6, c/o FIREMEN Magazine, 60 Batterymarch St., Boston 10, Massachusetts.



New Recruits

. . . deserve the finest Badges too —

Just like the veteran of your department, the new recruit is equally proud of his badge. That's why more and more departments are starting the men out with the finest badges. Be sure you ask your equipment supplier to show you Blackinton Badges the next time he calls.

Dealers Why should you promote and sell Blackinton Badges?

Because **— (1)** Blackinton sells only through authorized dealers — we protect and encourage your sales effort — we do not contact departments direct.

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V. H. Blackinton & Co., Inc. Attleboro Falls, Massachusetts

Your BEST PROTECTION FOR FLAMMABLE LIQUID GAS & ELECTRICAL FIRES

HAND PORTABLE • WHEELED PORTABLE • STATIONARY UNITS • PIPED SYSTEMS • TRUCK MOUNTS • TRAILERS SELF-PROPELLED UNITS

ANSUL FIRE EXTINGUISHING EQUIPMENT

MODEL 30-B

Ansul users get more from their investment in fire protection. In addition to superior fire extinguishing equipment, Ansul customers get valuable services. These services are available exclusively to users of Ansul Equipment.

Send for File No. 799. You will receive a variety of helpful printed matter. Included is our latest catalog and a description of the free services available to Ansul customers.

ANSUL Chemical Company

FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF FIRE EXTINGUISHING EQUIPMENT, INDUSTRIAL AND FINE ORGANIC CHEMICALS, LIQUEFIED GASES AND REFRIGERATION PRODUCTS

READY FOR TROUBLE!

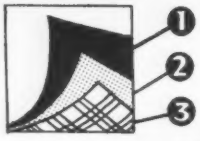
FLEXIBLE

COMFORTABLE

WATERPROOF

The Globe Suit Coat has a Hockmeyer Corduroy collar, 100% wool wristers in sleeves, arm shields, two pockets with patent stays and other exclusive features. It's light in weight, giving you full freedom of action. Get the facts from your dealer today, or write us for our latest catalog.

27R



HERE ARE THREE GARMENTS IN ONE

(1) A special duck woven to take the rough usage fire fighting demands, (2) an interlining made with 100% Du Pont Neoprene, and (3) your choice of a wool or flannel lining. All these blend into the one fine firemen's suit.

GLOBE DURABLE FIREMEN'S SUITS

GLOBE MANUFACTURING CO. PITTSFIELD, N. H.

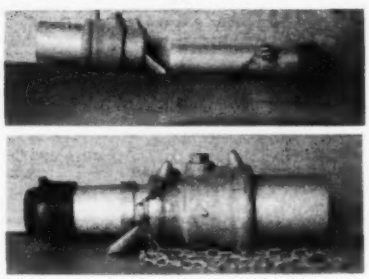
Topeka Daily Capital Photo

Good Stop in Topeka, Kansas

MEMBERS of the Topeka, Kansas, Fire Department successfully handled difficult exposure problems on March 26 when fire involved this 2-story masonry building housing an auto service store, a garage, a sporting goods store and a tire repair shop. The fire apparently started in the tire repair shop and spread rapidly after it involved large piles of tires.

Fire fighters responding to a delayed alarm found a heavily involved building. Within 15 minutes a general alarm was sounded. Total response included 4 chief officers, 72 fire fighters, four 600 gpm pumpers, four 750 gpm pumpers, and an aerial ladder truck. Despite narrow alleys fire fighters confined the fire to the building making good use of fog to protect exposures. Loss was estimated at $240,000.

●



Adapter for Irrigation Pipe

Chief Deputy E. A. Taylor, Oregon State Fire Marshal Department, sends the above photographs showing an adapter developed by Engineer Glenn Terry of the Tillamook Volunteer Fire Department. This adapter is designed to permit a fire department to connect to common irrigation piping as an emergency water supply. A chain is provided to prevent the adapter blowing off regardless of the type of coupling used. In actual use, with a 2½-inch hose, five tankers were supplied at a rural fire.

Directory of New York Fire Service Radio Stations

THE Bureau of Fire Mobilization and Control, Albany, New York, headed by Chief B. Richter Townsend, has distributed to all fire chiefs in that state a directory of fire service radio stations together with the call letters and a listing of frequency assignments. The listing of stations is arranged so that any portion may be cut out for mounting near a mobile or fixed radio unit.

Also included in the directory is the new phonetic alphabet now in use by the U. S. Air Force and the International Civil Aviation Organization. The old alphabet is still being used by the U. S. Army, U. S. Navy and U. S. Coast Guard.

According to the directory, when using phonetics it has become customary to use the phrase "I Spell." The phrase "Say Again" or "I Say Again" is gradually replacing the word "Repeat."

The new and old phonetic alphabets are shown below.

Phonetic Alphabets

New		Old
A	Alfa	Able
B	Bravo (Brah'voe)	Baker
C	Coca	Charlie
D	Delta	Dog
E	Echo	Easy
F	Foxtrot	Fox
G	Golf	George
H	Hotel	How
I	India	Item
J	Juliett (Joolee yet')	Jig
K	Kilo (Kee' loe)	King
L	Lima (Lee' mah)	Love
M	Metro (Met' roe)	Mike
N	Nectar	Nan
O	Oscar	Oboe
P	Papa (Pop' a)	Peter
Q	Quebec (kay beck')	Queen
R	Romeo	Roger
S	Sierra	Sugar
T	Tango	Tare
U	Union	Uncle
V	Victor	Victor
W	Whiskey	William
X	Extra	Exray
Y	Yankee	Yoke
Z	Zulu	Zebra
0	Ze-ro	Zee-roh
1	Wun	Wun
2	Too	Too
3	Tree	Thu-ree
4	Fow-er	Fo-wer
5	Fife	Fi-yiv
6	Six	Siks
7	Sev-en	Sev-ven
8	Ait	Ate
9	Nin-er	Ni-yen

Had we but world enough and time

no one would need monitors but speed in communication is economy and often a life and death matter.

MODEL PR9 FOR 152-174 MC BAND

Chief McMurtry and members of Sheridan, Indiana, Volunteer Fire Department with John Oakley Vice-President of Midwest Fire and Safety Equipment Co. who supervised monitoradio installation.

If you have a police, fire, forestry, pipeline, civil defense, taxi or any other vital 2-way radio system, here is how monitors pay off.

Says Chief McMurtry—of the Sheridan, Indiana, Volunteer Fire Department:

"In the past, the largest obstacles for our Volunteer Fire Department to overcome has been the method of determining the exact location of the fire and beating the traffic there. Speed of course is essential for the efficient operation of any Fire Department. Now, with the Town Police Radio Base Station located in the Department and with the use of 18 PR9 Receivers in the homes of our members we not only learn of the fire before the Town Siren is blown, but we in many cases arrive at the fire before the equipment.... *We do not hesitate to recommend this Receiver to any Department.*"

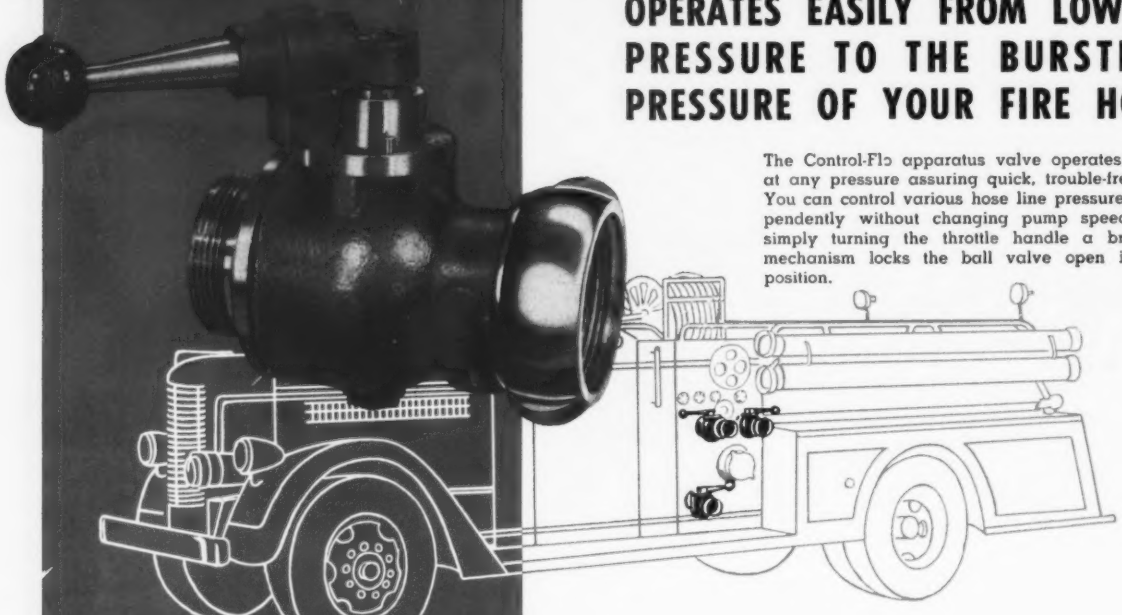
RADIO APPARATUS CORPORATION
55 NORTH NEW JERSEY STREET
INDIANAPOLIS 4, IND., PHONE: ATLANTIC 1624

MONITORADIO

CONTROL-FLO *Apparatus Valve*

OPERATES EASILY FROM LOWEST PRESSURE TO THE BURSTING PRESSURE OF YOUR FIRE HOSE

The Control-Flo apparatus valve operates easily at any pressure assuring quick, trouble-free use. You can control various hose line pressures independently without changing pump speed. By simply turning the throttle handle a breaking mechanism locks the ball valve open in any position.



WILL TAKE PRESSURE OR VACUUM IN EITHER DIRECTION

You can be assured of long-lasting, leak-proof valve operation when you specify Control-Flo valves on your new pumper for either suction or discharge use. Several apparatus manufacturers are now using this Control-Flo valve as standard equipment on their pumpers, other manufacturers will install them to meet your requirements. These valves are available in all thread or flange combinations for replacement of obsolete or worn-out valves.

Control-Flo valves will take pressure in either direction, for either discharge or intake. Holds vacuum for priming. The exclusive seal ring principle makes this possible. The full, round construction of the waterway leaves no obstructions and assures against turbulance and pressure loss. Can be furnished with remote controls for across-pump operations.

REDUCING SIAMESE WITH CONTROL-FLO VALVES

Engineered for the modern, streamlined apparatus this practical piece of equipment measures just 9 inches from the face of the swivel to the farthest projecting point.

WOOSTER

WOOSTER BRASS

WOOSTER, OHIO

A DIVISION OF THE FYR-FYTER CO.

"a very careful survey of fire equipment"

led Bell Aircraft Corporation to select

JOHN BEAN *high-pressure fog* FIRE-FIGHTER

Fast acting, on-the-spot methods of fire control are essential to the Bell Aircraft Corporation in Buffalo, New York. Equipment is needed that can run the gauntlet from airport crash calls to regular industrial fires. Inadequate equipment or equipment failure could prove disastrous in both lives and property. Bell had to be certain they were right when they selected their fire-fighting unit.

Here's an excerpt from a letter by Fire Chief Robert M. Stowell, "I conducted a very careful survey of fire equipment for combined use for airport, test cells, and industrial needs. It was decided that at least 800 lbs. pressure at the pump was needed to produce an effective fog to handle two nozzles. . . . We have used our John Bean High-Pressure truck several times and it has proven that we made the proper choice of equipment."

Be sure you make the proper choice for your community — investigate the John Bean High-Pressure Fog Fire-Fighter today.

JOHN fmc BEAN

ORIGINAL HIGH-PRESSURE FOG FIRE-FIGHTER

Can be mounted on most standard truck chassis

John Bean Division
Dept. 127
Lansing 4, Michigan

John Bean Division
P. O. Box 145
San Jose, California

A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION

Better Hose Care--- with CIRCUL-AIR

Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.

THE AIR CONDITIONING
FIRE HOSE DRYER

Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. NO OTHER DRYING METHOD IS SO FAST—SO ECONOMICAL—SO EASY TO USE.

ACCEPTED • APPROVED • RECOMMENDED

ACCEPTED as the standard drying medium in over 1500 fire departments — APPROVED by the leading testing laboratories — RECOMMENDED by fire hose manufacturers and Fire Chiefs "all over America."

PATENTED

If you are building, send for free copy of "Fire Station Design"

NEW HOSE DRYING MANUAL
TELLS HOW TO DRY, STORE AND CONSERVE FIRE HOSE
May we send you one?

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WATER when and where you want it!

with **HARODIKES**
Portable Canvas Water Tanks
THE ECONOMICAL AND EFFICIENT WAY TO CARRY AND STORE WATER.

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KEEPING AMERICA GREEN

EXCLUSIVE FEATURES

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- Easily Transported

Available in 150 & 300 gallon sizes

A WATER SUPPLY AT THE SCENE OF THE FIRE

Write TODAY for Full Information and Price List
HARODIKES INCORPORATED
NORTH DIGHTON, MASSACHUSETTS

HOWE Fire Truck Equipment Meeting Every Service Since 1872
Centrifugal, Rotary, and Piston Pumps supplied
HOWE FIRE APPARATUS COMPANY, 1406 West 22nd Street, Andersen, Indiana

Dates to Remember

Colorado: The Annual Colorado Convention and Fire School will be held in Pueblo, June 17–20. Write to Deputy Chief Arthur J. Becker, Denver Fire Department, Denver, Colorado.

Delaware: A short course for firemen will be held at Dover, July 21–24. Write to Director A. B. Anderson, Assistant State Director for Vocational Education, 511 W. 8th Street, Wilmington.

Kansas: The 24th Annual Kansas State Fire School will be held at the University of Kansas, Hutchinson, October 20–23. Write to Gerald Pearson, Director, Extension Classes, 111 Fraser Hall, University of Kansas, Lawrence, Kansas.

Maryland: The 20th Annual Short Course for Firemen will be held at the University of Maryland, College Park, September 8–11. Write to Robert C. Byrus, Director, Fire Service Extension, University of Maryland, Box 85, College Park, Maryland.

Michigan: The Michigan State Fire College will be held at the University of Michigan, Ann Arbor, June 23–26. Write to M. D. Whale, Supervisor, Public Service Training, Box 928, Lansing, Michigan.

Mississippi: The Mississippi State Fire School will be held at State College, June 22–27.

Missouri: The Missouri State Fire School will be held at the University of Missouri, Columbia, July 27–30. Write to J. I. Fetters, Adult Education and Extension Service, University of Missouri, 23 Jesse Hall, Columbia, Missouri.

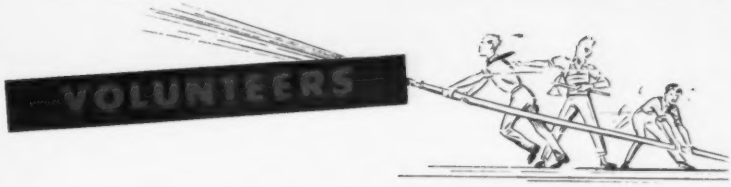
New Mexico: The Annual New Mexico Fire School and Convention will be held at Raton, June 6–8. Write to Chief F. E. Boren, P.O. Box 286, Silver City, New Mexico.

Tennessee: The Tennessee State Fire Service School will be held at Middle Tennessee State College, Murfreesboro, August 24–28. Write to W. A. Seeley, State Supervisor, T & I Education, 202 War Memorial Building, Nashville, Tennessee.

Washington: The Washington State Fire School will be held at Aberdeen, July 8–11. Write to Captain J. R. Cook, Assistant State Supervisor of Firemen's Training, P.O. Box 250, Olympia, Washington.

West Virginia: The West Virginia State Fire School will be held at West Virginia University, Morgantown, July 20–24. Write to R. E. Hanna, Jr., Fire Service Extension Schools, West Virginia University, Morgantown, West Virginia.

For the smaller community—
POSITIVE, INSTANT CONTACT with the



Provide your community—your property owners and your children — with all of the advantages of a big city fire alarm system.

At a cost well within reason, you can have a municipal fire alarm box system that will immediately announce the *location* of a fire.

Best of all, the smaller community can now get the basic fire alarm protection it needs, and extend the system circuit-by-circuit to avoid heavy investment at any one time.

As you know, almost every big fire *starts* as a *small* fire. Prevent delays with a positive, dependable fire alarm box system.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASS.
In Canada: Northern Electric Co., Ltd., Belleville, Ont.

Keep small fires from becoming big fires — with an adequate fire alarm box system.

CAIRNS

REGULATION

HELMETS

"NEW YORKER"

(Leather—No. 5A)

No other helmet made has ever shown the rugged stand-up-ability of this "pioneer" of all "regulation" helmets — which explains why it is first choice in the largest departments, where the duty is hardest.

"SENATOR"

(Aluminum—No. 350)

Where the preference is for aluminum, here is a rugged one-piece "regulation" helmet that is light, durable, safe and comfortable — and largely used by both regulars and volunteers, the country over.

"CLIFTON"

(Plastic—No. 900)

"Regulation" in every line, this latest Cairns Helmet is made of "Flintflex" — a light, tough, flexible material that gives complete protection against impact, heat, electric current and chemicals.

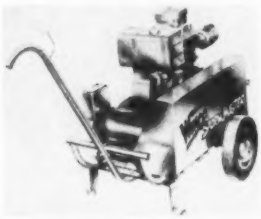
Write for Catalog 340

CAIRNS & BRO., INC.

ALLWOOD, CLIFTON, N. J.

Outfitters to Firemen Since 1836

What's New In Fire Equipment?



Engine-Driven Generator

Wincharger Corporation, East 7th and Division Streets, Sioux City 2, Iowa, has announced production of the Winco Storm Master Engine-Generator, Model 3030-X, without engine. It is designed to serve as a low cost standby power plant. Manufacturer claims that the new unit is 20 pounds lighter than other units of equivalent capacity, has 50 percent overload capacity for motor starting, and excellent voltage regulation. An important feature is the "Universal" mounting base which can accommodate a large number of different makes and models of engines. The unit may be obtained with or without engine. Standard engines from lawn mowers, water pumps, garden tractors, etc., may be used to drive the generator. Generator output depends on the size of engine used. With 7 to 8 HP engines the generator delivers rated output with reserve capacity up to 50 percent overload for motor starting. Engines of 5 HP deliver normal output of 2000 watts, while 2½ HP engines will furnish 200 to 350 watts output.

Civil Defense Emblem

Does the Civil Defense equipment in your area carry this type of emblem? U. S. Decal Company, Box 193, Williamsville, New York, offers this 8-in. diameter lacquered decalcomania in blue, red, and white for immediate delivery. Company claims that this water-applied sign has long life in outdoor exposure or may be used inside of glass. (See ad on page 26.)

For Small Fires

"Jiffy Fire Fighters" called the "Handy Andy" in many fire departments, now can be obtained directly from the manufacturer Hal Dickinson Products Company, 3736 Third Avenue, South, Minneapolis, Minnesota, at wholesale prices. Fire chiefs and fire fighters interested in obtaining this product may benefit from the new distribution arrangements. The unit consists of 50-ft. lengths of ½-in. two-ply plastic hose weighing 10 pounds per length and equipped with a combination straight and fan-spray nozzle. It is designed primarily for use on small Class A fires. (See ad on page 22.)

Fog Nozzles for 1½-in. Hose

Bete Fog Nozzle, Incorporated, 85 Pierce Street, Greenfield, Massachusetts, has announced two models of a fog nozzle for 1½-in. hose. Called the G-10 and G-15, the nozzles feature a patented spiral tip and are adjustable to fog or straight stream positions or shut off by turning the handle. Manufacturer reports that the G-15 has a fog capacity of 50 gpm and a straight stream capacity of 100 gpm, while the G-10 model delivers a fog flow of 25 gpm and a straight stream of 50 gpm at 100 psi. Both nozzles are said to be self-cleaning and non-clogging and are constructed of polished stainless steel and chrome plated brass parts. Shut-off may be made gradually to eliminate danger of back pressure damage to hose or pump. For further details write to the manufacturer at the above address.

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NEW WAYS TO FIGHT BLAZE!
number 1 in a series

NEW McCULLOCH PORTABLE PUMP

Supplies Pumper Fighting Haystack Fire

Haystack burning! Farm pond 150 feet from haystack is down a 20-foot bank, inaccessible to the pumper. With the portable McCulloch 7 FP pump at 10 feet above the pond, pumper is supplied with 220 gpm.

Pumper can use three hoses combating blaze: two 1½ inch lines with ⅜ and ½ inch nozzles, and one 2½ inch line with ¾ inch nozzle, with 60 psi at each nozzle; ⅜ nozzle delivers 33 gpm, ½ nozzle 58 gpm, and ¾ nozzle 128/219 gpm.

Model 7 FP McCulloch

CENTRIFUGAL FIRE PUMP

Weighs only 57 lb complete!
Delivers 250 gpm!
Develops pressures over 100 psi!
Primes at 25 ft suction lift!
Delivers fog, stream, or foam!

(all measurements in U. S. gallons)

PERFORMANCE CHART (with 10-foot suction lift)

Discharge Pressure PSI	10	20	30	40	50	60	70	80	90	100
Discharge Hd. Ft. Water	23	46	69	92	115	138	161	184	207	231
U.S. Gal. Per Minute	250	227	197	164	130	101	78	54	38	25

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NFPA Announces:

"Fire Fighting Tactics"

By Lloyd Layman, former Chief of the Parkersburg, West Virginia, Fire Department and author of the book "Attacking and Extinguishing Interior Fires"

Cloth bound, $5\frac{3}{4}$ x $8\frac{3}{4}$ in., 112 pages, 25 illustrations $3.75 per copy

You will find this book a valuable companion volume to "Attacking and Extinguishing Interior Fires" which was published by the NFPA last year. "Fire Fighting Tactics" is a complete revision of Lloyd Layman's first manual, published in 1940, which received widespread acceptance from the fire service. Its contents should be useful to fire chiefs, fire training instructors, and many other fire fighters concerned with tactical operations on the fire ground.

The purpose of this volume is to outline a system of training to enable fire officers and future fire officers to become familiar with the analyses and directing of fire ground operations. The author details factors that officers should consider when they encounter a fire, including the planning and controlling of efficient tactics for attacking and extinguishing fires of major proportions.

Separate chapters are devoted to size-up, rescue, protection of exposures, confinement of fire, extinguishing methods, ventilation and salvage. Each chapter details factors commanding officers should consider, then explains initial decisions and supplemental decisions that should be made as the fire progresses. A considerable proportion of the book contains a guide for classroom analyses of tactical problems and operational plans.

The author has also included actual case histories of fires which his department encountered. Fire conditions are illustrated by pictures and each case history describes the placement of apparatus, extinguishing methods used, and the results obtained. Considerable attention is given to the "indirect" method of water fog application and to rescue and salvage operations.

The NFPA is publishing this book as valuable information on fire fighting by a practical fire fighter of national reputation. It has not been acted upon or reviewed by any of the technical committees of the Association.

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